

## SECTION 09255

## GYPSUM BOARD ASSEMBLIES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

A. This Section includes the following:

1. Non-load-bearing steel framing members for gypsum board assemblies.
2. Gypsum board assemblies attached to steel framing.
3. Cementitious backer units installed with gypsum board assemblies.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 6 Section "Rough Carpentry" for the following: Wood blocking and grounds.
2. Division 7 Section "Building Insulation " for thermal insulation.
3. Division 7 Section "Firestopping" for firestopping systems and fire-resistive-rated joint sealants.
4. Division 9 Section "Tile" for cementitious backer units installed as substrates for ceramic tile.

## 1.3 DEFINITIONS

Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.

## 1.4 ASSEMBLY PERFORMANCE REQUIREMENTS

Sound Transmission Characteristics: For gypsum board assemblies indicated to have STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing agency.

## 1.5 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Product certificates signed by manufacturers of gypsum board assembly components certifying that their products comply with specified requirements.

## 1.6 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Where fire-rated gypsum board assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction. Fire Resistance Ratings: As indicated by reference to GA File Numbers in GA-600 "Fire Resistance Design Manual" or to design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer.
- C. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.
- D. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage

from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

- C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

## 1.8 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.
- B. Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.
- C. Ventilation: Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Steel Framing and Furring:
    - a. Alabama Metal Industries Corp.
    - b. Consolidated Systems, Inc.
    - c. Dale Industries, Inc.
    - d. Dietrich Industries, Inc.
    - e. Marino Industries Corp.
    - f. Gold Bond Building Products Div., National Gypsum Co.
    - g. Unimast Inc.

2. Grid Suspension Assemblies:

- a. Chicago Metallic Corp.
- b. National Rolling Mills Co.
- c. USG Interiors, Inc.

3. Gypsum Board and Related Products:

- a. Domtar Gypsum.
- b. Georgia-Pacific Corp.
- c. Gold Bond Building Products Div., National Gypsum Co.
- d. United States Gypsum Co.

2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

- A. General: Provide components complying with ASTM C 754 for materials and sizes unless otherwise indicated.
- B. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
- C. Hanger Rods: Mild steel and zinc-coated or protected with rust-inhibitive paint.
- D. Flat Hangers: Mild steel and zinc-coated or protected with rust-inhibitive paint.
- E. Angle-Type Hangers: Angles with legs not less than 7/8 inch wide, formed from 0.0635-inch-thick galvanized steel sheet complying with ASTM A 446 Coating Designation G90, with bolted connections and 5/16-inch-diameter bolts.
- F. Channels: Cold-rolled steel, 0.05980-inch-minimum thickness of base (uncoated) metal and 7/16-inch-wide flanges, and as follows:
  - 1. Carrying Channels: 2 inches deep, 590 lb per 1000 feet, unless otherwise indicated.
  - 2. Carrying Channels: 1-1/2 inch deep, 475 lb per 1000 feet, unless otherwise indicated.
  - 3. Furring Channels: 3/4 inch deep, 300 lb per 1000 feet, unless otherwise indicated.
  - 4. Finish: Rust-inhibitive paint, unless otherwise indicated.
  - 5. Finish: G-60 hot-dip galvanized coating per ASTM A 525 for framing for exterior soffits and where indicated.

- G. Steel Studs for Furring Channels: ASTM C 645, with flange edges bent back 90 deg and doubled over to form 3/16-inch minimum lip (return), minimum thickness of base (uncoated) metal and minimum depth as follows:
1. Thickness: 0.0329 inch, unless otherwise indicated.
  2. Depth: As indicated.
  3. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525.
- H. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth of 7/8 inch, and minimum thickness of base (uncoated) metal as follows:
1. Thickness: 0.0329 inch, unless otherwise indicated.
  2. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525.
- I. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross furring members that interlock to form a modular supporting network.

## 2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. General: Provide steel framing members complying with the following requirements:
1. Component Sizes and Spacings: As indicated but not less than that required to comply with ASTM C 754 under the following maximum deflection and lateral loading conditions: Maximum Deflection: L/240 at 5 lbf per sq. ft.
  2. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525.
- B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16-inch-wide minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
1. Thickness: 0.0270 inch unless otherwise indicated.
  2. Thickness: 0.0329 inch where indicated.
  3. Depth: 3-5/8 inches, unless otherwise indicated.
  4. Depth: 6 inches where indicated.

5. Depth: 2-1/2 inches where indicated.
  6. Depth: 1-5/8 inch where indicated.
  7. Depth: 4 inches where indicated.
- C. Steel Rigid Furring Channels: ASTM C 645, hat-shaped, depth and minimum thickness of base (uncoated) metal as follows:
1. Depth: 7/8 inch.
  2. Thickness: 0.0329 inch, unless otherwise indicated.
- D. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

## 2.4 GYPSUM BOARD PRODUCTS

- A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end butt joints. Thickness: Provide gypsum board in thicknesses indicated or, if not otherwise indicated, in 5/8 inch thicknesses to comply with ASTM C 840 for application system and support spacing indicated.
- B. Gypsum Wallboard: ASTM C 36 and as follows:
1. Type: Type X required for all assemblies.
  2. Type: Sag-resistant type for ceiling surfaces.
  3. Edges: Tapered.
  4. Thickness: 5/8 inch unless otherwise indicated.
  5. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work where proprietary gypsum wallboard is indicated include, but are not limited to, the following:
  6. Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:
    - a. Gyprock Fireguard C Gypsum Board, Domtar Gypsum.
    - b. Firestop Type C, Georgia-Pacific Corp.

- c. Fire-Shield G, Gold Bond Building Products Div., National Gypsum Co.
  - d. SHEETROCK Brand Gypsum Panels, FIRECODE C Core, United States Gypsum Co.
  - e. SHEETROCK Brand Gypsum Panels, ULTRACODE Core, United States Gypsum Co.
- C. Gypsum Backing Board for Multilayer Applications: ASTM C 442 or, where backing board is not available from manufacturer, gypsum wallboard, ASTM C 36 and as follows:
  - 1. Type: Type X required for all assemblies.
  - 2. Edges: Manufacturer's standard.
  - 3. Edges: Square, nontapered; or V-tongue and groove.
  - 4. Thickness: 5/8 inch unless otherwise indicated.
- D. Water-Resistant Gypsum Backing Board: ASTM C 630 and as follows:
  - 1. Type: Regular, unless otherwise indicated.
  - 2. Type: Type X where required for fire-resistive-rated assemblies.
  - 3. Thickness: 5/8 inch, unless otherwise indicated.

## 2.5 CEMENTITIOUS BACKER UNITS

- A. Provide cementitious backer units complying with ANSI A118.9, of thickness and width indicated below, and in maximum lengths available to minimize end-to-end butt joints. Width: Manufacturer's standard width but not less than 32 inches.
- B. Available Products: Subject to compliance with requirements, cementitious backer units that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following products:
  - 1. DomCrete Cementitious Tile-Backer Board, Domtar Gypsum.
  - 2. Util-A-Crete Concrete Backer Board, FinPan, Inc.
  - 3. Glas-crete Cementitious Backer Board, Glascrete, Inc.

4. Wonder-Board, Glascrete, Inc.
5. DUROCK Interior Cement Board, United States Gypsum Co.

## 2.6 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Corner beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
  1. Material: Formed metal, plastic, or metal combined with paper, with metal complying with the following requirement:
    - a. Sheet steel zinc-coated by hot-dip process.
    - b. Sheet steel coated with zinc by hot-dip or electrolytic processes, or with aluminum or rolled zinc.
  2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
    - a. Cornerbead on outside corners, unless otherwise indicated.
    - b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim unless otherwise indicated.
    - c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
    - d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.
    - e. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.

## 2.7 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated. Use pressure-sensitive or staple-attached open-weave glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.
- C. Joint Tape for Cementitious Backer Units: Polymer-coated, open glass-fiber mesh.



- D. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
1. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
  2. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer for this purpose.
  3. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by the gypsum board manufacturer for this purpose.
  4. For topping compound, use sandable formulation.
- E. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
1. Ready-Mixed Formulation: Factory-mixed product.
  2. Job-Mixed Formulation: Powder product for mixing with water at Project site.
  3. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
  4. Topping compound formulated for fill (second) and finish (third) coats.
  5. All-purpose compound formulated for both taping and topping compounds.
- F. Joint Compound for Cementitious Backer Unit: Material recommended by cementitious backer unit manufacturer.

## 2.8 ACOUSTICAL SEALANT

- A. Latex Acoustical Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.

2. Product has flame-spread and smoke-developed ratings of less than 25 per ASTM E 84.
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.
- C. Available Products: Subject to compliance with requirements, acoustical sealants that may be incorporated in the Work include, but are not limited to, the following:
- D. Products: Subject to compliance with requirements, provide one of the following:
1. Acoustical Sealant:
    - a. AC-20 FTR Acoustical and Insulation Sealant, Pecora Corp.
    - b. SHEETROCK Acoustical Sealant, United States Gypsum Co.
  2. Acoustical Sealant for Concealed Joints:
    - a. BA-98, Pecora Corp.
    - b. Tremco Acoustical Sealant, Tremco, Inc.

## 2.9 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
- B. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum panels.
- C. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot grouting hollow metal door frames.
- D. Fastening Adhesive for Wood: ASTM C 557.
- E. Fastening Adhesive for Metal: Special adhesive recommended for laminating gypsum panels to steel framing.
- F. Steel drill screws complying with ASTM C 1002 for the following applications:
1. Fastening gypsum board to steel members less than 0.03 inch thick.
  2. Fastening gypsum board to wood members.

3. Fastening gypsum board to gypsum board.
- G. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick.
- H. Corrosion-resistant-coated steel drill screws of size and type recommended by board manufacturer for fastening cementitious backer units.
- I. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
- J. Sound Attenuation Blankets: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing):
  1. Mineral-Fiber Type: Fibers manufactured from glass.
- K. Polyethylene Vapor Retarder: ASTM D 4397, thickness and maximum permeance rating as follows:
  1. 4.0 mils, 0.19 perms.
  2. 6.0 mils, 0.13 perms.
- L. Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their

full strength and at spacing required to support ceilings. Furnish concrete inserts and other devices indicated to other trades for installation well in advance of time needed for coordination with other construction.

### 3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.
  - 1. Where building structure abuts ceiling perimeter or penetrates ceiling.
  - 2. Where partition framing and wall furring abut structure except at floor. Provide slip- or cushioned-type joints as detailed to attain lateral support and avoid axial loading.
- D. Do not bridge building expansion and control joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

### 3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Suspend ceiling hangers from building structural members and as follows:
  - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.

Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
  5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
  6. Do not attach hangers to steel deck tabs.
  7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  8. Do not connect or suspend steel framing from ducts, pipes or conduit.
- B. Sway-brace suspended steel framing with hangers used for support.
- C. Install suspended steel framing components in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard.
1. Wire Hangers: 0.1620-inch (8-gage) diameter, 4 feet o.c.
  2. Carrying Channels (Main Runners): 1-1/2 inch, 4 feet o.c.
  3. Rigid Furring Channels (Furring Members): 16 inches o.c.
- D. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring members or grid suspension members are level to within 1/8 inch in 12 feet as measured both lengthwise on each member and transversely between parallel members.
- E. Wire-tie or clip furring members to main runners and to other structural supports as indicated.
- F. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

- G. For exterior soffits, install cross-bracing and additional framing to resist wind uplift according to details on Drawings.

### 3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction. Where studs are installed directly against exterior walls, install asphalt felt strips between studs and wall.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Cut studs 1/2 inch short of full height. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board. For STC-rated and fire-resistive-rated partitions requiring partitions to extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.
- D. Terminate partition framing at suspended ceilings where indicated.
- E. Install steel studs and furring in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard to comply with maximum deflection and minimum loading requirements specified:
  - 1. Single-Layer Construction: Space studs at 24 inches o.c.
  - 2. Single- and Double-Layer Construction: Space studs at 24 inches o.c.
- F. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.
- G. Frame door openings to comply with details indicated, with GA-219, and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.

- H. Frame openings other than door openings to comply with details indicated or, if none indicated, in same manner as required for door openings. Install framing below sills of openings to match framing required above door heads.
- I. Install thermal insulation as follows:
  - 1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches o.c.
  - 2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
  - 3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring channel with standard width insulation panel and continue in regular manner. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
  - 4. Until gypsum board is installed, hold insulation in place with 10-inch staples fabricated from 0.0625-inch (16-gage)-diameter tie wire and inserted through slot in web of member.
- J. Install polyethylene vapor retarder where indicated to comply with the following requirements:
  - 1. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with mechanical fasteners or adhesives. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose mineral-fiber insulation.
  - 2. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs. Fasten vapor retarders to framing at top, end, and bottom edges, at perimeter of wall openings, and at lap joints; space fasteners 16 inches o.c.
  - 3. Seal joints in vapor retarders caused by pipes, conduits, electrical boxes and similar items penetrating vapor retarders with vapor retarder tape.
  - 4. Repair any tears or punctures in vapor retarder immediately before concealing it with the installation of gypsum board or other construction.

### 3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
- B. Install sound attenuation blankets where indicated prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install wall/partition board panels to minimize the number of abutting end joints or avoid them entirely. Stagger abutting end joints not less than one framing member in alternate courses of board. At high walls, install panels horizontally with end abutting joints over studs and staggered.
- E. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- F. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position adjoining panels so that tapered edges abut tapered edges, and field-cut edges abut field-cut edges and ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions. Avoid joints at corners of framed openings where possible.
- G. Attach gypsum panels to steel studs so that the leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- H. Attach gypsum panels to framing provided at openings and cutouts.
- I. Spot grout hollow metal door frames for solid core wood doors, hollow metal doors, and doors over 32 inches wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.
- J. Form control joints and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
- K. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chase walls that are braced internally.
  - 1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.



2. Fit gypsum panels around ducts, pipes, and conduits.
  3. Where partitions intersect structural members projecting below underside of roof decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4-to-1/2-inch-wide joints to install sealant.
- L. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments as detailed and required. Provide 1/4-inch wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- M. Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- N. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.

### 3.7 GYPSUM BOARD APPLICATION METHODS

- A. Single-Layer Application: Install gypsum wallboard panels as follows:
1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
  2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.
  3. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless parallel application is required for fire-resistive-rated assemblies. Use maximum-length panels to minimize end joints.
- B. Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with the following:
1. Install cementitious backer units at showers and where indicated to comply with ANSI A108.11.
  2. Install gypsum wallboard panels with tapered edges taped and finished to produce a flat surface except at showers and other locations indicated to receive water-resistant panels.

- C. Double-Layer Application: Install gypsum backing board for base layers and gypsum wallboard for face layers. On partitions/walls, apply base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face layer joints offset at least one stud or furring member with base layer joints. Stagger joints on opposite sides of partitions.
- D. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows: Fasten with screws.
- E. Double-Layer Fastening Methods: Apply base layer of gypsum panels and face layer to base layer as follows: Fasten base layers with screws and face layer with adhesive and supplementary fasteners.

### 3.8 INSTALLING TRIM ACCESSORIES

- A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
- B. Install corner beads at external corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed or semiexposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.
  - 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
  - 2. Install L-bead where edge trims can only be installed after gypsum panels are installed.
  - 3. Install U-bead where indicated.

### 3.9 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.
- B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type

joint compound.

- C. Apply joint tape over gypsum board joints except those with trim accessories having concealed face flanges not requiring taping to prevent cracks from developing in joint treatment at flange edges.
- D. Apply joint tape over gypsum board joints and to trim accessories with concealed face flanges as recommended by trim accessory manufacturer and as required to prevent cracks from developing in joint compound at flange edges.
- E. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
  - 1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
  - 2. Level 2 where water-resistant gypsum backing board panels form substrates for tile, and where indicated.
  - 3. Level 3 for gypsum board surfaces indicated to receive medium- or heavy-textured finishes before painting.
  - 4. Level 4 for gypsum board surfaces indicated to receive light-textured finishes, wallcoverings, and flat paints over light textures.
- F. For level 4 gypsum board finish, embed tape in finishing compound plus two separate coats applied over joints, angles, fastener heads, and trim accessories using one of the following combinations of joint compounds (not including prefill), and sand between coats and after last coat.
- G. Where level 3 gypsum board finish is indicated, apply joint compounds specified for first and second coat in addition to embedding coat.
- H. Where level 2 gypsum board finish is indicated, apply joint specified for first coat in addition to embedding coat.
- I. Where level 1 gypsum board finish is indicated, apply joint compound specified for embedding coat.
- J. Finish cementitious backer units to comply with unit manufacturer's directions.

### 3.10 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.

- B. Provide final protection and maintain conditions, in a manner suitable to Installer, that ensures gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.

END OF SECTION 09255

## SECTION 09300

## TILE

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Glazed paver tile.
  - 2. Glazed wall tile.
- B. Related Sections: The following sections contain requirements that relate to this Section:
  - 1. Division 2 Section "Selective Demolition" for removal of existing tile.
  - 2. Division 3 Section "Concrete Work" for monolithic slab finishes specified for tile substrates.
  - 3. Division 7 Section "Joint Sealers" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
  - 4. Division 9 Section "Gypsum Board Assemblies" for cementitious backer units installed as part of gypsum wallboard systems.

## 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Shop drawings indicating tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces. Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordinate them with tile joint

locations, in consultation with Contracting Officer.

- D. Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected.
  - 1. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted.
  - 2. Full-size units of each type of trim and accessory for each color required.
  - 3. Metal edge strips in 6-inch lengths.
- E. Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- F. Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of tile and tile setting and grouting products with requirements indicated.
- G. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

#### 1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.
- C. Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and

labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.

- B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.
- C. Handle tile with temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If despite these precautions coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

## 1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at 50 deg F (10 deg C) or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

## 1.7 EXTRA MATERIALS

- A. Deliver extra materials to Government. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

- A. Glazed Paver Tile:
  - 1. American Marrazzi Tile, Inc.

2. American Olean Tile Co., Inc.
3. Dal-Tile Corp.
4. Midland International Tileworks
5. Monarch Tile Manufacturing, Inc.
6. United States Ceramic Tile Co.
7. Villeroy & Boch (U.S.A.) Inc.
8. Wenczel Tile Co.

B. Glazed Wall Tile:

1. American Marrazzi Tile, Inc.
2. American Olean Tile Co., Inc.
3. Buchtal Corp. USA
4. Dal-Tile Corp.
5. International American Ceramics/Laufen
6. Mid-State Tile Co.
7. Monarch Tile Manufacturing, Inc.
8. Summitville Tiles, Inc.
9. United States Ceramic Tile Co.
10. Villeroy & Boch (U.S.A.) Inc.
11. Wenczel Tile Co. of Florida

B. Polyvinyl-Acetate-Based Latex-Portland Cement Dry Mortar Mix: Laticrete International Inc.

C. Latex-Emulsion-Based Latex-Portland Cement Mortars:

1. American Olean Tile Co., Inc.



2. Boiardi Products Corp.
3. Bostik Construction Products Div.
4. Custom Building Products
5. C-Cure Chemical Co.
6. DAP Inc. Div.; USG Corp.
7. L & M Mfg. Inc.
8. Laticrete International Inc.
9. Mapei Corp.
10. Southern Grouts & Mortars, Inc.
11. Summitville Tiles, Inc.
12. Syracuse Adhesives Co.

E. Chemical-Resistant, Water-Cleanable Ceramic Tile Setting Epoxy Mortars:

1. American Olean Tile Co., Inc.
2. Atlas Minerals & Chemicals, Inc.
3. Bostik Construction Products Div.
4. C-Cure Chemical Co.
5. L & M Mfg. Inc.
6. Mapei Corp.
7. Southern Grouts & Mortars, Inc.
8. Summitville Tiles, Inc.
9. Syracuse Adhesives Co.

F. Furan Mortars and Grouts:

1. Atlas Minerals & Chemicals, Inc.

2. L & M Mfg. Inc.
  3. Laticrete International Inc.
  4. Summitville Tiles, Inc.
- G. Ethylene-Vinyl-Acetate-Based Latex-Portland Cement Prepackaged Dry Grout Mixes:
1. American Olean Tile Co., Inc.
  2. Boiardi Products Corp.
  3. C-Cure Chemical Co.
  4. DAP Inc. Div.; USG Corp.
  5. Southern Grouts & Mortars, Inc.
  6. Summitville Tiles, Inc.
- H. Manufacturers of Chemical-Resistant Joint Sealants:
1. Atlas Minerals & Chemicals Inc.
  2. Pennwalt Corp.

## 2.2 PRODUCTS, GENERAL

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
1. Match Contracting Officer's sample.
  2. Match color, texture, and pattern indicated by reference to Dal-Tile Corp

and Summitville, Inc., standard designations for these characteristics.

3. Provide selections made by Contracting Officer from manufacturer's full range of standard colors, textures, and patterns for products of type indicated:
    - a.) Dal White, D-100, Field, wall tile, (Dal-Tile).
    - b.) Imperva, Silver Grey, I62, Field, paver tile, (Summitville).
    - c.) Imperva, Steel Blue, I76, Accent, random pattern paver tile, (Summitville).
  4. Provide tile trim and accessories that match color and finish of adjoining flat tile.
- D. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.
- E. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

## 2.3 TILE PRODUCTS

- A. Glazed Paver Tile: Provide flat tile complying with the following requirements:
1. Composition: Porcelain.
  2. Nominal Facial Dimensions: 12 inches by 12 inches.
  3. Nominal Thickness: 1/4 inch.
  4. Face: Plain with square or cushion edges.
- B. Glazed Wall Tile: Provide flat tile complying with the following requirements:
1. Nominal Facial Dimensions: 4-1/4 inches by 4-1/4 inches.
  2. Nominal Thickness: 5/16 inch.
  3. Face: Plain with cushion edge.
  4. Mounting: Factory back-mounted.

- C. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:
1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
  2. Shapes: As follows, selected from manufacturer's standard shapes:
    - a. Base for Portland Cement Mortar Installations: Coved.
    - b. Base for Thinset Mortar Installations: Straight.
    - c. Wainscot Cap for Portland Cement Mortar Installations: Bullnose cap.
    - d. Wainscot Cap for Thinset Mortar Installations: Surface bullnose.
    - e. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above.
    - f. External Corners for Portland Cement Mortar Installations: Bullnose shape with a radius of at least 3/4 inch unless otherwise indicated.
    - g. External Corners for Thinset Installations: Surface bullnose.
    - h. Internal Corners: Field-buttet square corners, except use coved base and cap angle pieces designed to member with stretcher shapes.

## 2.4 WATERPROOFING FOR THINSET TILE INSTALLATIONS

- A. Urethane Waterproofing and Tile-Setting Adhesive: Manufacturer's standard proprietary product consisting of one-part liquid-applied urethane in a consistency suitable for trowel application and intended for use as both waterproofing and tile-setting adhesive in a two-step process.
- B. Available Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following: Urethane Waterproofing and Tile-Setting Adhesive: "Hydroment Ultra-Set"; Bostik Construction Products Div.

## 2.5 SETTING MATERIALS

Latex-Portland Cement Mortar: ANSI A118.4, composition as follows:

- A. Prepackaged dry mortar mix composed of portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at job site. Dry Polymer Additive: Manufacturer's standard.
- B. Latex additive (water emulsion) of type described below, serving as replacement for part or all of gauging water, combined at job site with prepackaged dry mortar mix

supplied or specified by latex additive manufacturer. Latex Type: Manufacturer's standard.

## 2.6 GROUTING MATERIALS

- A. Latex-Portland Cement Grout: ANSI A118.6, color as indicated, composition as follows:
  - 1. Prepackaged dry grout mix composed of portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at job site. Dry Polymer Additive: Polyvinyl acetate or ethylene vinyl acetate.
  - 2. Latex additive (water emulsion) serving as replacement for part or all of gauging water, added at job site with dry grout mixture, with type of latex and dry grout mix as follows:
    - a. Latex Type: Manufacturer's standard. Application: Use dry-set grout combined with latex additive for grouting joints in glazed wall tile.
    - b. Dry Grout Mixture: Commercial portland cement specified or supplied by latex additive manufacturer. Application: Use commercial portland cement grout combined with latex additive for grouting joints in floor tile unless otherwise indicated.
- B. Chemical-Resistant Epoxy Grout: ANSI A118.3, color as indicated. Provide product capable of resisting continuous and intermittent exposure to temperatures of up to 140 deg F (60 deg C) and 212 deg F (100 deg C), respectively, as certified by mortar manufacturer for intended use.
- C. Chemical-Resistant Furan Grout: ANSI A118.5.

## 2.7 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with requirements of Division 7 Section "Joint Sealers," including ASTM C 920 as referenced by Type, Grade, Class, and Uses.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- C. One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses

NT, G, A, and as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.

D. Available Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to the following: One-Part Mildew-Resistant Silicone Sealant:

1. "Dow Corning 786"; Dow Corning Corp.
2. "SCS 1702"; General Electric Co.
3. "863 #345 White"; Pecora Corp.
4. "Rhodorsil 6B White"; Rhone-Poulenc Inc.
5. "Proglaze White"; Tremco Corp.

## 2.8 MISCELLANEOUS MATERIALS

Temporary Protective Coating: Provide product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout, is compatible with tile and mortar/grout products, and is easily removable after grouting is completed without damaging grout or tile. Petroleum paraffin wax, fully refined, tasteless, odorless, containing at least 0.5 percent oil with a melting point of 120 deg F (49 deg C) to 140 deg F (60 deg C) per ASTM D 87.

## 2.9 MIXING MORTARS AND GROUT

Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

A. Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
  2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- B. Field-Applied Temporary Protective Coating: Where indicated under tile type or needed to prevent adhesion or staining of exposed tile surfaces by grout, protect exposed surfaces of tile against adherence of mortar and grout by precoating them with a continuous film of temporary protective coating indicated below, taking care not to coat unexposed tile surfaces: Petroleum paraffin wax, applied hot.

### 3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.
- B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.

- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.
- F. Lay out tile wainscots to next full tile beyond limits indicated.
- G. Grout tile to comply with the requirements of the following installation standards: For chemical-resistant furan grouts, comply with ANSI A108.8.
- H. At showers and similar wet areas, install cementitious backer units and treat joints to comply with manufacturer's instructions for type of application indicated.

### 3.4 WATERPROOFING FOR THINSET TILE INSTALLATIONS

- A. Install waterproofing in compliance with waterproofing manufacturer's instructions to produce a waterproof membrane of uniform thickness bonded securely to substrate.
- B. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

### 3.5 FLOOR INSTALLATION METHODS

- A. Paver Tile: Install tile to comply with requirements indicated below for setting-bed method, TCA installation method related to types of subfloor construction, and grout types:
  - 1. Portland Cement Mortar: ANSI A108.1.
    - a. Bond Coat: Latex-portland cement mortar on cured bed, ANSI A108.5.
    - b. Concrete Subfloor, Interior: TCA F112 (bonded).
    - c. Grout: Latex-portland cement.
  - 2. Latex-Portland Cement Mortar: ANSI A108.5.
    - a. Concrete Subfloor, Interior: TCA F113.
    - b. Grout: Latex-portland cement unless otherwise indicated.
- B. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets other flooring that finishes flush with top of tile.



### 3.6 WALL TILE INSTALLATION METHODS

- A. Install types of tile designated for wall application to comply with requirements indicated below for setting-bed methods, TCA installation methods related to subsurface wall conditions, and grout types:
  - 1. Portland Cement Mortar: ANSI A108.1.
    - a. Masonry or Concrete, Interior: TCA W211 (bonded).
    - b. Solid Backing, Interior: TCA W222 (one-coat method).
    - c. Grout: Latex-portland cement.
  - 2. Latex-Portland Cement Mortar: ANSI A108.5.

### 3.7 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
  - 1. Remove latex-portland cement grout residue from tile as soon as possible.
  - 2. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to brick and grout manufacturer. Trap and remove coating to prevent it from clogging drains.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- C. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration at time of Substantial Completion.
  - 1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
  - 2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09300

## SECTION 09512

## ACOUSTICAL TILE CEILINGS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following: Acoustical tile ceilings, concealed suspension.
- B. Related Sections: The following sections contain requirements that relate to this section:
  - 1. Division 15 Section for grilles, registers, and diffusers in acoustical ceilings.
  - 2. Division 16 Section for lighting fixtures in acoustical ceilings.
  - 3. Division 5 Section for metal fabrications for items installed with above ceiling connections.

## 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
  - 1. Product data for each type of product specified.
  - 2. Coordination drawings for reflected ceiling plans drawn accurately to scale and coordinating penetrations and ceiling-mounted items. Show the following:
    - a. Ceiling suspension members.
    - b. Method of attaching hangers to building structure.
    - c. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinkler heads; and special moldings at walls, column penetrations, and other junctures with adjoining construction.
    - d. Scale: 1/8 inch = 1'-0".
  - 3. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual acoustical units or sections of units showing full range of colors, textures, and patterns available for each type of unit indicated.

4. Samples for verification purposes of each type of exposed finish required, prepared on samples of size indicated below and of same thickness and material indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.
  - a. 6-inch-square samples of each acoustical tile type, pattern, and color.
  - b. Full-size samples of each tile type, pattern, and color required.
  - c. Set of 12-inch-long samples of concealed suspension system members.
  - d. Set of 12-inch-long samples of exposed moldings for each color and system type required.
5. Qualification data for firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.
6. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction that show compliance of acoustical ceiling system and components with building code in effect for Project.
7. Product test reports from qualified independent testing laboratory that is based on its testing of current products for compliance of acoustical ceiling systems and components with requirements.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to that indicated for Project.
- B. Fire Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.

  1. Flame Spread: 25 or less.
  2. Smoke Developed: 50 or less.
- C. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent

quality in appearance and physical properties without delaying progress of the Work.

- D. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work. Obtain suspension system from same manufacturer that produces acoustical ceiling units.
- E. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components, and partition system.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

## 1.6 PROJECT CONDITIONS

Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

## 1.7 EXTRA MATERIALS

Deliver extra materials to Government. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2.0 percent of amount installed (minimum of one (1) full carton)..

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be

incorporated in the Work include but are not limited to the following:

- B. Products: Subject to compliance with requirements, provide the following:  
Mineral-Base Tile - Nodular, Cast or Molded, with Painted Finish,  
Non-Fire-Resistance Rated, non-directional, 24 inch by 48 inch by 5/8 inch  
thickness: "Georgian 763," Armstrong World Industries, Inc.
- C. Manufacturers: Subject to compliance with requirements, provide products by the  
following: Non-Fire-Resistance-Rated Direct-Hung Double-Web Steel Suspension  
Systems: Armstrong World Industries, Inc.

## 2.2 ACOUSTICAL CEILING UNITS, GENERAL

- A. Standard for Acoustical Ceiling Units: Provide manufacturers' standard units of  
configuration indicated that comply with ASTM E 1264 classifications as  
designated by reference to types, patterns, acoustical ratings, and light reflectance,  
unless otherwise indicated. Mounting Method for Measuring NRC: Type E-400  
(plenum mounting in which face of test specimen is 15-3/4 inches away from the  
test surface) per ASTM E 795.
- B. Colors and Patterns: Provide products to match appearance characteristics indicated  
under each product type.
  - 1. TYPE A - "Georgian Humiguard Plus", Armstrong World Industries, Inc.,  
for all areas unless noted otherwise, Color – White, 24 inches by 48 inches  
by 5/8 inch thickness.
  - 2. TYPE B - "Clean Room VL Perforated", Armstrong World Industries, Inc.,  
for restrooms and vestibules, Color – White, 24 inches by 48 inches by 5/8-  
inch thickness.

## 2.3 METAL SUSPENSION SYSTEMS, GENERAL

- A. Standard for Metal Suspension Systems: Provide manufacturer's standard concealed  
metal suspension systems of types, structural classifications, and finishes indicated  
that comply with applicable ASTM C 635 requirements.
- B. Finishes and Colors: Provide manufacturer's factory-applied finish for exposed  
moldings appropriate for the specified systems and panels.
- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper. Gage:  
Provide wire sized so that stress at 3 times hanger design load (ASTM C 635,  
Table 1, Direct-Hung) will be less than yield stress of wire, but provide not less than  
0.106-inch diameter (12-gage).
- D. Edge Moldings and Trim: Metal of types and profiles indicated or, if not indicated,  
provide manufacturer's standard molding for edges and penetrations of ceiling that

fits with type of edge detail and suspension system indicated. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

## 2.4 NON-FIRE-RESISTANCE-RATED SUSPENSION SYSTEMS

Direct-Hung Double-Web Suspension System: Main and cross runners roll-formed from and capped with prepainted or electrolytic zinc-coated cold-rolled steel sheet; other characteristics as follows:

- A. Structural Classification: Intermediate-Duty System.
- B. Access: Upward, with sizes for modules formed by main runners and cross-tees.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-width units at borders, and comply with reflected ceiling plans.

### 3.3 INSTALLATION

- A. General: Install acoustical ceiling systems to comply with installation standard below per manufacturer's instructions and Cisca "Ceiling Systems Handbook." Standard for Installation of Ceiling Suspension Systems: Comply with ASTM C 636.
- B. Arrange acoustical units and orient directionally patterned units (if any) in manner shown by reflected ceiling plans. Install tile with pattern running in one direction.
- C. Suspend ceiling hangers from building structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
  2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with the location of hangers at spacing required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
  3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices that are secure and appropriate for structure to which hangers are attached as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
  5. Do not support ceilings directly from permanent metal forms; furnish cast-in-place hanger inserts that extend through forms.
  6. Do not attach hangers to steel deck tabs.
  7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  8. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.
- D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
1. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
  2. Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.



- E. Install acoustical tile in coordination with suspension system. Place splines or flanges of suspension system into kerfed edges, or insert tile tongues into tile grooves, so that every tile-to-tile joint is closed by double lap of material.
  - 1. Fit adjoining tile to form flush, tight joints. Scribe and cut for accurate fit at borders and around penetrating work.
  - 2. Fabricate access units for special suspension system access members and tile units modified as required to allow for removal of access units.

### 3.4 CLEANING

Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09512

## SECTION 09521

## ACOUSTICAL WALL PANELS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

A. This Section includes the following:

1. Spline-mounted acoustical wall panels with perforated mineral fiberboard or cementitious fiberboard core.
2. Spline-mounted acoustical wall panels with glass fiberboard or low-density mineral fiberboard core.
3. Back-mounted, edge-reinforced acoustical wall panels.
4. Back-mounted, edge-reinforced acoustical wall panels with impact-resistant face.
5. Back-mounted, edge-framed acoustical wall panels.
6. Back-mounted, edge-framed acoustical wall panels with impact resistant face.

B. Where Owner-furnished material is indicated for facing material of acoustical wall panels, Owner will provide facing materials suitable for wall panel applications of type indicated with respect to both fabrication and fire performance characteristics based on information furnished by panel manufacturer during preparation of Contract Documents. Where acoustical wall panels faced with owner-furnished materials have not been tested as an assembly for compliance with requirements for fire performance characteristics indicated, engage and pay for the services of an independent and qualified testing laboratory, acceptable to BCE and authorities having jurisdiction, to perform required tests.

C. Installation of unmounted fabric furnished by manufacturer of acoustical wall panels is specified in Wall Covering Section of Division 9.

## 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of acoustical wall panel specified.
- C. Samples for initial selection purposes in 12-inch-square units of each type of acoustical wall panel required and in each color, texture, and pattern indicated or selected for facing materials. Include representative samples of installation devices and accessories.
- D. Samples for verification purposes 12-inch-square units of each type of acoustical wall panel required and in each color, texture, and pattern indicated or selected for facing materials. Include representative samples of installation devices and accessories.
- E. Product test reports from and based on tests performed by qualified independent testing laboratory acceptable to authorities having jurisdiction, evidencing that acoustical wall panels comply with requirements specified for fire performance characteristics and sound absorption performance.
- F. Product certificates signed by manufacturers of acoustical wall panels certifying that their products comply with specified requirements.

#### 1.4 QUALITY ASSURANCE

- A. Testing Laboratory Qualifications: To qualify for acceptance, an independent testing laboratory must demonstrate to BCE's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying the progress of the Work.
- B. Fire Performance Characteristics: Provide acoustical wall panels with surface-burning characteristics as indicated below, as determined by testing assembled materials composed of facings and backings identical to those required in this Section, per ASTM E 84, by a testing organization acceptable to authorities having jurisdiction.
  - 1. Flame Spread: 25 or less.
  - 2. Smoke Developed: 450 or less.
- C. Single Source Responsibility for Acoustical Wall Panels: Obtain each type of acoustical wall panel from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying the progress of the Work.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

Protect acoustical wall panels from excessive moisture in shipment, storage, and handling. Deliver in unopened bundles and store in a dry place with adequate air circulation. Do not deliver material to building until "wet work" such as concrete and plaster have been completed and cured to a condition of equilibrium.

## 1.6 PROJECT CONDITIONS

- A. Do not begin installation until spaces to receive acoustical wall panels have been enclosed and maintained at approximately the same humidity and temperature conditions as planned for occupancy. Maintain temperature and humidity as recommended by panel manufacturer.
- B. Field Measurements: Check actual wall surfaces by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of Work. Where field measurements cannot be made without delaying the Work, guarantee opening dimensions and proceed with fabrication of acoustical wall panels without field measurements. Coordinate wall construction to ensure that actual dimensions correspond to guaranteed dimensions.

## 1.7 EXTRA MATERIALS

Deliver extra materials to Owner. Furnish extra materials described below matching products installed, packaged with protective covering for storage and identified with appropriate labels: Acoustical Wall Panels: Furnish quantity of full size units equal to 2.0 percent of the amount installed.

## PART 2 - PRODUCTS

### 2.1 ACOUSTICAL WALL PANELS, GENERAL

- A. Fabricate panels to sizes and configurations indicated; attach facing materials to cores to produce installed panels with visible surfaces fully covered and free from wrinkles, sags, blisters, seams, adhesive or other foreign matter.
  - 1. Fabricate back-mounted panels in factory to exact sizes required to fit wall surfaces based on field measurements of completed substrates indicated to receive acoustical wall panels.
  - 2. Where radius corners are indicated, attach facing material so there are no seams or gathering of material.
- B. Sound Absorption Performance: Provide acoustical wall panels with minimum noise reduction coefficients (NRC) indicated as determined by testing per

ASTM C 423 for mounting type specified under individual product requirements.

- C. Colors, Textures, and Patterns: Where manufacturer's standard material is indicated, provide acoustical wall panels faced with manufacturer's material complying with the following requirements:
1. Match BCE Samples.
  2. Match colors, textures, and patterns indicated by reference to manufacturer's standard designations for these characteristics.
  3. Provide selections made by BCE from manufacturer's full range of standard colors, textures, and patterns for products of type indicated.

## 2.2 SPLINE-MOUNTED ACOUSTICAL WALL PANELS

- A. Spline-Mounted Acoustical Wall Panels with Perforated Mineral Fiberboard or Cementitious Fiberboard Core: Manufacturer's standard panel construction consisting of facing material laminated to a core of perforated, water-felted mineral fiberboard core with a nominal density of 20 lbs. per cu. ft. or cementitious fiberboard with a nominal density of 20 lbs. per cu. ft., with long edges kerfed and rabbeted to receive splines, and complying with the following requirements:
1. Thickness/NRC: Nominal overall panel thickness of 3/4 inch/NRC of 0.60 - 0.70 for Type A (#4) mounting.
  2. Thickness/NRC: Nominal overall panel thickness of 1 inch/NRC of 0.80 for Type A (#4) mounting.
  3. Facing Material: Manufacturer's standard woven polyester fabric.
  4. Facing Material: Manufacturer's standard nonwoven polyester fabric.
  5. Facing Material: Manufacturer's standard perforated vinyl.
  6. Panel Width: Manufacturer's standard.
  7. Panel Width: 24 inches.
  8. Panel Width: 30 inches.
  9. Panel Height: As indicated, fabricated from 9'-0" high units.
  10. Panel Height: As indicated, fabricated from 10'-0" high units.
- B. Spline-Mounted Acoustical Wall Panels with Glass Fiber Board or Low-Density Mineral Fiberboard Core: Manufacturer's standard panel construction consisting of facing material laminated to core of rigid glass fiber board with a nominal density of

6 - 8 lbs. per cu. ft. or low-density mineral fiberboard; with long edges kerfed and rabbeted to receive splines; and complying with the following requirements:

1. Thickness/NRC: Nominal overall panel thickness of 1-1/8 inches/NRC of 0.80 for Type A (#4) mounting.
  2. Facing Material: Manufacturer's standard woven polyester or polypropylene fabric.
  3. Facing Material: Manufacturer's standard woven polypropylene fabric.
  4. Facing Material: Manufacturer's standard woven polyester fabric.
  5. Facing Material: Manufacturer's standard nonwoven polyester fabric.
  6. Facing Material: Manufacturer's standard perforated vinyl.
  7. Panel Width: Manufacturer's standard.
  8. Panel Width: 24 inches.
  9. Panel Width: 30 inches.
  10. Panel Width: 48 inches.
  11. Panel Height: As indicated, fabricated from 9'-0" high units.
  12. Panel Height: As indicated, fabricated from 10'-0" high units.
- C. Spline-Mounting Accessories: Manufacturer's standard concealed extruded aluminum or plastic connecting splines designed and fabricated for screw attachment to walls, with other moldings and trim for interior and exterior corners as required. Provide panel manufacturer's standard factory-applied finish on exposed items in the following color:
1. White.
  2. Black.
  3. Match color of facing material.
  4. Match BCE's sample for color.
- D. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
- E. Products: Subject to compliance with requirements, provide one of the following:
1. Spline-Mounted Acoustical Wall Panels with Perforated Mineral Fiberboard

or Cementitious Fiberboard Core:

- a. "Soundsoak Encore," Armstrong World Industries, Inc.
  - b. "Soundsoak Ovation," Armstrong World Industries, Inc.
  - c. "Soundsoak 60," Armstrong World Industries, Inc.
  - d. "Fabri-Tough," Tectum, Inc.
  - e. "Silent 65," USG Interiors, Inc.
2. Spline-Mounted Acoustical Wall Panels with Glass Fiber Board or Low-Density Mineral Fiberboard Core:
    - a. "Soundsoak 85," Armstrong World Industries, Inc.
    - b. "Fabri-Glass," Tectum, Inc.

## 2.3 BACK-MOUNTED ACOUSTICAL WALL PANELS

- A. Back-Mounted, Edge-Reinforced Acoustical Wall Panels: Manufacturer's standard panel construction consisting of facing material laminated to front, edges, and back border of molded glass fiber board core, with edges chemically hardened to reinforce panel perimeter against warpage and damage, and complying with the following requirements:
  1. Core Density: 4 - 7 lbs. per cu. ft.
  2. Core Density: 6 - 7 lbs. per cu. ft.
  3. Thickness/NRC: Nominal overall thickness of 3/4 inch/NRC of 0.70 for Type A (#4) mounting.
  4. Thickness/NRC: Nominal overall thickness of either 1 inch, 1-1/16 inch or 1-1/8 inch as standard with manufacturer/NRC of 0.80 for Type A (#4) mounting.
  5. Thickness/NRC: Nominal overall thickness of either 2 inch or 2-1/16 inch/NRC of 0.95 for Type A (#4) mounting.
  6. Facing Material: Owner-furnished material.
  7. Facing Material: Manufacturer's standard woven polyester fabric.
  8. Facing Material: Manufacturer's standard abuse-resistant woven polyester fabric over glass fiber scrim.
  9. Facing Material: Manufacturer's standard woven polyester or polypropylene fabric.
  10. Facing Material: Manufacturer's standard perforated vinyl.

11. Panel Size: As indicated.
12. Edge Detail: Square.
13. Edge Detail: Chamfered (beveled).
14. Edge Detail: Mitered.
15. Edge Detail: Bull-nosed.
16. Corner Detail: Square.
17. Corner Detail: Round, radius as indicated.
18. Corner Detail: Off-square, angles as indicated.

B. Back-Mounted, Edge-Reinforced Acoustical Wall Panels with Impact-Resistant Face: Manufacturers standard panel construction consisting of facing material laminated to front, edges, and back border of 2-ply molded glass fiber board core, with edges chemically hardened to reinforce panel perimeter against warpage and damage, and complying with the following requirements.

1. Core Densities and Construction: Impact-resistant face layer with a thickness of 1/8 inch and density of 18 lbs. per cu. ft. laminated to base layer with a density of 6 lbs. per cu. ft.
2. Thickness/NRC: Nominal overall thickness of 1-1/8 inches as standard with manufacturer/NRC of 0.80 for Type A (#4) mounting.
3. Thickness/NRC: Nominal overall thickness of 2-1/8 inches/NRC of 0.95 for Type A (#4) mounting.
4. Facing Material: Owner-furnished material.
5. Facing Material: Manufacturer's standard woven polyester fabric.
6. Facing Material: Manufacturer's standard perforated vinyl.
7. Panel Size: As indicated.
8. Edge Detail: Square.
9. Edge Detail: Chamfered (beveled).
10. Edge Detail: Mitered.
11. Edge Detail: Bull-nosed.
12. Corner Detail: Square.



13. Corner Detail: Round, radius as indicated.
  14. Corner Detail: Off-square, angles as indicated.
- C. Back-Mounted, Edge-Framed Acoustical Wall Panels: Manufacturer's standard panel construction consisting of fabric facing stretched over edge-framed glass fiber board core and bonded or attached to edges and back of frame; and complying with the following requirements:
1. Wood Framing: Hardwood, kiln-dried, rabbeted, and splined with glued joints and machined corners.
  2. Metal Framing: Extruded aluminum.
  3. Metal Framing: Extruded aluminum or zinc-coated rolled steel shape.
  4. Core Density/Thickness/NRC: 3 lbs. per cu. ft./1-3/4 inches nominal overall thickness/NRC of 0.85 for Type A (#4) mounting.
  5. Core Density/Thickness/NRC: 3 lbs. per cu. ft./2-3/4 inches nominal overall thickness/NRC of 1.05 for Type A (#4) mounting.
  6. Core Density/Thickness/NRC: 4 - 7 lbs. per cu. ft./1 inches, 1-1/16 inches, 1-1/8 inches or 1-1/4 inches nominal overall thickness as standard with manufacturer/NRC of 0.70 - 0.80 for Type A (#4) mounting.
  7. Core Density/Thickness/NRC: 4 - 7 lbs. per cu. ft./2 inches, 2-1/16 inches, 2-1/8 inches, 2-3/16 inches, or 2-1/4 inches nominal overall thickness as standard with manufacturer/NRC of 0.95 - 1.05 for Type A (#4) mounting.
  8. Facing Material: Owner-furnished material.
  9. Facing Material: Manufacturer's standard woven polyester fabric.
  10. Facing Material: Manufacturer's standard abuse-resistant polyester fabric over glass fiber scrim.
  11. Facing Material: Manufacturer's standard perforated vinyl.
  12. Panel Size: As indicated.
  13. Edge Detail: Square.
  14. Edge Detail: Chamfered (beveled).
  15. Edge Detail: Mitered.
  16. Edge Detail: Bull-nosed.

17. Corner Detail: Square.
  18. Corner Detail: Round, radius as indicated.
  19. Corner Detail: Off-square, angles as indicated.
- D. Back-Mounted, Edge-Framed Acoustical Wall Panels with Impact-Resistant Face: Manufacturer's standard panel construction consisting of fabric facing stretched over edge-framed glass fiber board core and bonded or attached to edges and back of frame; and complying with the following requirements:
1. Wood Framing: Hardwood, kiln-dried, rabbeted, and splined with glued joints and machined corners.
  2. Metal Framing: Extruded aluminum.
  3. Metal Framing: Extruded aluminum or zinc-coated rolled steel shape.
  4. Core Densities and Construction: High-impact face layer with a thickness of 1/8 inches and density of 18 lbs. per cu. ft. laminated to base layer with a density of 4-7 lbs. per cu. ft.
  5. Thickness/NRC: Nominal overall thickness of 1-1/8 inches/NRC of 0.80 for Type A (#4) mounting.
  6. Thickness/NRC: Nominal overall thickness of 1-7/16 inches/NRC of 0.90 for Type A (#4) mounting.
  7. Thickness/NRC: Nominal overall thickness of 2-1/8 inches/NRC of 0.95 for Type A (#4) mounting.
  8. Thickness/NRC: Nominal overall thickness of 2-7/16 inches/NRC of 0.85 for Type A (#4) mounting.
  9. Facing Material: Owner-furnished material.
  10. Facing Material: Manufacturer's standard woven polyester fabric.
  11. Facing Material: Manufacturer's standard perforated vinyl.
  12. Panel Size: As indicated.
  13. Edge Detail: Square.
  14. Corner Detail: Square.
- E. Back-Mounting Accessories: Manufacturer's standard or recommended accessories for securely mounting panels of type and size indicated to substrates provided and

complying with the following requirements:

1. Mechanically Mounted Edge-Reinforced Panels: Metal panel clip and base support bracket system and consisting of 2-part panel clips, with one part of each clip mechanically attached to back of panel and the other to wall substrate, designed to support panels laterally; and base support brackets designed to support full weight of panels; with both designed to allow panel removal.
  2. Mechanically Mounted Wood-Framed Panels: Z clip hanger and magnet system with magnets recessed into the frame and designed to engage steel mounting plates which are secured to the wall with levelling mastic.
  3. Mechanically Mounted Metal-Framed Panels: Metal panel clip system designed to engage metal framing of panels and allow removal of panels, with base support brackets where recommended by manufacturer to support weight of panels.
- F. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:
- G. Products: Subject to compliance with requirements, provide one of the following:
1. Back-Mounted, Edge-Reinforced Acoustical Wall Panels:
    - a. "Wall Panels-Series 400," Architectural Silence, Inc.
    - b. "Sonotrol 7.5," Armstrong World Industries, Inc.
    - c. "Sonotrol 10," Armstrong World Industries, Inc.
    - d. "Sonotrol 20," Armstrong World Industries, Inc.
    - e. "Colorsonix 1800 Series," Metal Building Interior Products Co.
    - f. "AFG700 Panel," StretchWall Products, Inc.
    - g. "VC-80," Victrex, Inc.
  2. Back-Mounted, Edge-Reinforced Acoustical Wall Panels with Impact-Resistant Face:
    - a. "Wall Panels-Series 500," Architectural Silence, Inc.
    - b. "Sonotrol 11 H," Armstrong World Industries, Inc.
    - c. "Sonotrol 21 H," Armstrong World Industries, Inc.
    - d. "AFG718 Panel," StretchWall Products, Inc.
  3. Back-Mounted, Edge-Framed Acoustical Wall Panels:
    - a. "Silentspace W-103," Essi Acoustical Products Co.
    - b. "Standard Wall Panels," Interior Acoustics, Inc.
    - c. "Colorsonix 2000 Series," with covered metal edge, Metal Building Interior Products Co.
    - d. "Silent Wall SW100 Series," Noise Control Products Div., MPC, Inc.

- e. "Silent Wall SW200 Series," Noise Control Products Div., MPC, Inc.
  - f. "Standard Wall Panels," Sound Reduction Corp.
  - g. "Magni-Roc Panel 8000," StretchWall Products, Inc.
  - h. "Magni-Roc Panel 8100," StretchWall Products, Inc.
  - i. "Magni-Roc Panel 8200," StretchWall Products, Inc.
  - j. "Series 125 Wall Panels," Tibbet, Inc.
  - k. "VC-80AL," Vicrtex, Inc.
4. Back-Mounted, Edge-Framed Acoustical Wall Panels with Impact Resistant Face:
- a. "Silentspace W-104," Essi Acoustical Products Co.
  - b. "Standard 1 Tackable Wall Panels," Interior Acoustics, Inc.
  - c. "Silent Wall SW200AT Series," Noise Control Products Div., MPC Inc.
  - d. "High Impact Wall Panels," Sound Reduction Corp.
  - e. "Magni-Roc Panel 8000T," StretchWall Products, Inc.
  - f. "Magni-Roc Panel 8100T," StretchWall Products, Inc.
  - g. "Magni-Roc Panel 8200T," StretchWall Products, Inc.
  - h. "VC-80ALD," Vicrtex, Inc.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install acoustical wall panels in locations indicated with vertical surfaces and edges plumb, top edges level, and in alignment with other panels, scribed to fit adjoining work accurately at borders and at penetrations. Comply with panel manufacturer's printed instructions for installation of panels using type of mounting accessories indicated or, if none indicated, as recommended by manufacturer. Cut units to be at least 50 percent of unit width, with facing material extended over cut edge to match uncut edge. Scribe acoustical wall panels to fit adjacent work. Butt joints tightly.
- A. Remove and replace panels which are damaged and are unacceptable to BCE.

### 3.2 CLEANING

- A. Clean panels with fabric facing, upon completion of installation, to remove dust and other foreign materials from the facing, using a dry brush or a vacuum or both.
- B. Clean panels with vinyl facing, upon completion of installation, to remove dust and other foreign materials from the facing, using warm water and a clean sponge, wipe dry.
- C. Remove surplus materials, rubbish, and debris resulting from acoustical wall panel

installation upon completion of work, and leave areas of installation in neat, clean condition.

END OF SECTION 09521

## SECTION 09660

## RESILIENT TILE FLOORING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

This Section includes the following:

- A. Vinyl composition floor tile.
- A. Resilient wall base, reducer strips, and other accessories installed with resilient floor tiles are specified in Division 9 Section "Resilient Wall Base and Accessories."

## 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified. Certification by tile manufacturer that products supplied for tile installation comply with local regulations controlling use of volatile organic compounds (VOC's).
- C. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual tiles or sections of tiles showing full range of colors and patterns available for each type of resilient floor tile indicated.
- D. Samples for verification purposes in full-size tiles of each different color and pattern of resilient floor tile specified, showing full range of variations expected in these characteristics.
- E. Product certificates, in lieu of laboratory test reports when permitted by Contracting Officer, signed by manufacturer certifying that each product complies with requirements.
- F. Maintenance data for resilient floor tile, to include in Operating and Maintenance Manual specified in Division 1.

#### 1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Floor Tile: Obtain each type, color, and pattern of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Fire Performance Characteristics: Provide resilient floor tile with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
  - 2. Smoke Density: Less than 450 per ASTM E 662.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver tiles and installation accessories to Project site in original manufacturer's unopened cartons and containers each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store flooring materials in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- C. Store tiles on flat surfaces. Move tiles and installation accessories into spaces where they will be installed at least 48 hours in advance of installation.

#### 1.6 PROJECT CONDITIONS

- A. Maintain a minimum temperature of 70 deg F (21 deg C) in spaces to receive tiles for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F (13 deg C).
- B. Do not install tiles until they are at the same temperature as the space where they are to be installed.
- C. Close spaces to traffic during tile installation.

#### 1.7 SEQUENCING AND SCHEDULING

- A. Install tiles and accessories after other finishing operations, including painting, have been completed.
- B. Do not install tiles over concrete slabs until the slabs have cured and are sufficiently dry to bond with adhesive as determined by tile manufacturer's recommended bond

and moisture test.

## 1.8 EXTRA MATERIALS

Deliver extra materials to Government. Furnish extra materials matching products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents. Furnish not less than one box for each 50 boxes or fraction thereof, of each class, wearing surface, color, pattern and size of resilient floor tile installed.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

Available Products: Subject to compliance with requirements, resilient floor tiles that may be incorporated in the Work include, but are not limited to, the products specified in each Product Data Sheet at end of this Section.

### 2.2 RESILIENT TILE

Vinyl Composition Floor Tile: Products complying with ASTM F 1066, Composition 1 (nonasbestos formulated), Kentile, 12 X 12 inches square, color - Silver Gray, #1453, or an approved equal.

### 2.3 INSTALLATION ACCESSORIES

- A. Concrete Slab Primer: Nonstaining type as recommended by flooring manufacturer.
- B. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by tile manufacturer for applications indicated.
- C. Adhesives (Cements): Water-resistant, non-asbestos formulated, type recommended by tile manufacturer to suit resilient floor tile products and substrate conditions indicated.
- D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.

## PART 3 - EXECUTION



### 3.1 EXAMINATION

- A. General: Examine areas where installation of tiles will occur, with Installer present, to verify that substrates and conditions are satisfactory for tile installation and comply with tile manufacturer's requirements and those specified in this Section.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
  - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by tile manufacturer.
  - 2. Finishes of subfloors comply with tolerances and other requirements specified in Division 3 Section "Cast-In-Place Concrete" for slabs receiving resilient flooring.
  - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.
- C. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. General: Comply with manufacturer's installation specifications to prepare substrates indicated to receive tile.
- B. Use trowelable leveling and patching compounds per tile manufacturer's directions to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- D. Broom or vacuum clean substrates to be covered by tiles immediately before tile installation. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.
- E. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

### 3.3 INSTALLATION

- A. General: Comply with tile manufacturer's installation directions and other requirements indicated that are applicable to each type of tile installation included

in Project.

- B. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths at perimeter that equal less than one-half of a tile. Install tiles square with room axis, unless otherwise indicated.
- C. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged, if so numbered. Cut tiles neatly around all fixtures. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Lay tiles in basket weave pattern with grain direction alternating between reversed in adjacent tiles.
  - 2. Lay tiles in pattern with respect to location of colors, patterns, and sizes as indicated on Drawings.
- D. Where demountable partitions and other items are indicated for installing on top of finished tile floor, install tile before these items are installed.
- E. Scribe, cut, and fit tiles to butt tightly to vertical surfaces, permanent fixtures, built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.
- F. Extend tiles into toe spaces, door reveals, closets, and similar openings.
- G. Maintain reference markers, holes, or openings that are in place or plainly marked for future cutting by repeating on finish flooring as marked on subfloor. Use chalk or other nonpermanent marking device.
- H. Install tiles on covers for telephone and electrical ducts, and similar items occurring within finished floor areas. Maintain overall continuity of color and pattern with pieces of flooring installed on these covers. Tightly adhere edges to perimeter of floor around covers and to covers.
- I. Adhere tiles to flooring substrates without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections in completed tile installation.
- J. Use full spread of adhesive applied to substrate in compliance with tile manufacturer's directions including those for trowel notching, adhesive mixing, and adhesive open and working times.
- K. Hand roll tiles where required by tile manufacturer.

### 3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing tile installation:

1. Remove visible adhesive and other surface blemishes using cleaner recommended by tile manufacturers.
  2. Sweep or vacuum floor thoroughly.
  3. Do not wash floor until after time period recommended by resilient floor tile manufacturer.
  4. Damp-mop tile to remove black marks and soil.
- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by tile manufacturer.
1. Apply protective floor polish to tile surfaces that are free from soil, visible adhesive, and surface blemishes.
    - a. Use commercially available, metal, cross-linked acrylic product acceptable to tile manufacturer.
    - b. Coordinate selection of floor polish with Owner's maintenance service.
  2. Cover tiles with undyed, untreated building paper until inspection for Substantial Completion.
  3. Do not move heavy and sharp objects directly over tiles. Place plywood or hardboard panels over tiles and under objects while they are being moved. Slide or roll objects over panels without moving panels.
- C. Clean tiles not more than 4 days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean tiles using method recommended by manufacturer.
1. Strip protective floor polish that was applied after completing installation prior to cleaning.
  2. Apply one coat of floor sealer and 2 coats of floor polish per product application instructions. Buff floor after each coat of polish.

END OF SECTION 09660

## SECTION 09678

## RESILIENT WALL BASE AND ACCESSORIES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Resilient wall base.
  - 2. Resilient flooring accessories.
  - 3. Resilient carpet accessories.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 9 Section "Resilient Tile Flooring."
  - 2. Division 9 Section "Carpet".

## 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Samples for initial selection purposes of manufacturer's standard sample sets in form of pieces cut from each type of product specified showing full range of colors and patterns available.
- D. Samples for verification purposes in manufacturer's standard sizes, but not less than 12 inches long, of each different color and pattern of product specified.

- E. Product certificates, in lieu of laboratory test reports when permitted by Contracting Officer, signed by manufacturer certifying that each product complies with requirements.

#### 1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Products: Obtain each type and color of product specified from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Fire Performance Characteristics: Provide products with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
  - 2. Smoke Density: Less than 450 per ASTM E 662.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in original manufacturer's unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store products in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- C. Move products into spaces where they will be installed at least 48 hours in advance of installation.

#### 1.6 PROJECT CONDITIONS

- A. Maintain a minimum temperature of 70 deg F (21 deg C) in spaces to receive products specified in this Section for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F (13 deg C).
- B. Do not install products until they are at the same temperature as that of the space where they are to be installed.
- C. Close spaces to traffic during installation of products specified in this Section.

## 1.7 SEQUENCING AND SCHEDULING

Sequence installing products specified in this Section with other construction to minimize possibility of damage and soiling during remainder of construction period.

## 1.8 EXTRA MATERIALS

Deliver extra materials to Government. Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels clearly describing contents. Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof of each different type and color of resilient wall base installed.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to Roppe Rubber Corporation.

## 2.2 RESILIENT WALL BASE

Rubber Wall Cove Base: Products complying with FS SS-W-40a, Type I. It shall be Roppe Standard Toe Base, with a height of 4" in #74 Smoke Color and 1/8" thickness or equal approved by Contracting Officer.

## 2.3 RESILIENT ACCESSORIES

Rubber Accessories: Products complying with FS SS-W-40a, Type 1. They shall be Roppe Rubber provided for various applications where needed in #195 Light Gray or equal approved by Contracting Officer.

## 2.4 INSTALLATION ACCESSORIES

- A. Concrete Slab Primer: Nonstaining type as recommended by flooring manufacturer.
- B. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by flooring manufacturer for applications indicated.

- C. Adhesives: Water-resistant, non-asbestos formulated, type recommended by manufacturer to suit resilient flooring product and substrate conditions indicated.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

Examine areas where installation of products specified in this Section will occur, with Installer present, to verify that substrates and conditions are satisfactory for installation and comply with manufacturer's requirements and those specified in this Section.

### 3.2 PREPARATION

- A. General: Comply with manufacturer's installation specifications for preparing substrates indicated to receive products indicated.
- B. Use trowelable leveling and patching compounds per manufacturers directions to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- D. Broom or vacuum clean substrates to be covered immediately before installing products specified in this Section. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.
- E. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

### 3.3 INSTALLATION

- A. General: Install products specified in this Section using methods indicated according to manufacturer's installation directions.
- B. Apply resilient wall base to walls, columns, pilasters, casework, and other permanent fixtures in rooms and areas where base is required. Install wall base in lengths as long as practicable. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

1. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
  2. Install inside and exterior corners before installing straight pieces.
- C. Place resilient accessories so they are butted to adjacent materials of type indicated and bond to substrates with adhesive. Install reducer strips at edges of flooring that otherwise would be exposed.
- D. Apply resilient accessories to stairs as indicated and according to manufacturer's installation instructions.

### 3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing installation:
1. Remove visible adhesive and other surface blemishes using cleaner recommended by manufacturers of resilient product involved.
  2. Sweep or vacuum floor thoroughly.
  3. Do not wash floor until after time period recommended by manufacturer.
  4. Damp-mop resilient accessories to remove black marks and soil.
- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by manufacturer of resilient product involved.
1. Apply protective floor polish to resilient accessories that are free from soil, visible adhesive, and surface blemishes.
    - a. Use commercially available metal, cross-linked, acrylic product acceptable to resilient accessory manufacturer.
    - b. Coordinate selection of floor polish with Owner's maintenance service.
  2. Cover resilient accessories on floors and stairs with undyed, untreated building paper until inspection for Substantial Completion.
- C. Clean products specified in this Section not more than 4 days prior to dates



scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products using method recommended by manufacturer.

1. Strip protective floor polish that was applied after completing installation, prior to cleaning.
2. Reapply floor polish after cleaning.

END OF SECTION 09678

## SECTION 09680

## CARPET

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

This Section includes carpet, installation, accessories, and cushion.

## 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of carpet material and installation accessory required. Submit written data on physical characteristics, durability, resistance to fading, and flame resistance characteristics.
- C. Shop drawings showing layout and seaming diagrams. Indicate pile or pattern direction and locations and types of edge strips. Indicate columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet. Show installation details at special conditions.
- D. Samples for verification purposes in manufacturer's standard size, showing full range of color, texture, and pattern variations expected. Prepare samples from same material to be used for the Work. Submit the following:
  - 1. 12-inch-square samples of each type of carpet material required.
  - 2. 12-inch-long samples of each type exposed edge stripping and accessory item.

## 1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualification: Firm whose carpet materials comply with "Use of Materials Bulletin UM-44C" published by U.S. Department of Housing and Urban Development (HUD) and are currently listed in HUD "Certified Products Directory" and so identified by imprint on back of carpet.

- B. Carpet Surface Burning Characteristics: Provide carpet identical to that tested for the following fire performance characteristics, per test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify carpet with appropriate markings of applicable testing and inspecting organization.
  - 1. Flammability: Floor Radiant Panel – Class 1.
  - 2. Smoke Density: NBS Smoke Density Chamber (NFPA-258): Less than 450.
- C. Soil Release: Equal to DuraTech Patented Soil Resistant.
- D. Static Electricity 70/20AATCC – 134: Under 3.5 KV
- E. The carpet shall meet FHA Standards for heavy traffic conditions.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- B. Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat, blocked off ground. Maintain minimum temperature of 68 deg F (20 deg C) at least three days prior to and during installation in area where materials are stored.

## 1.6 PROJECT CONDITIONS

Substrate Conditions: No condensation within 48 hours on underside of 4-foot by 4-foot polyethylene sheet, fully taped at perimeter to substrate.

## 1.7 EXTRA MATERIALS

Deliver extra materials to Government. Furnish extra materials matching products installed as described below, packaged with protective covering for storage and identified with labels describing contents. Carpet: Before installation begins, furnish quantity of full width for each type of material equal to 5 percent of amount installed.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following: Carpet: See Data Sheets at the end of this Section.

## 2.2 ACCESSORIES

- A. Carpet Edge Guard: Extruded or molded heavy-duty vinyl or rubber of size and profile required; minimum 2-inch-wide anchorage flange; manufacturer's standard colors.
- B. Seaming Cement: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- C. Carpet Adhesive: Water resistant and nonstaining as recommended by carpet manufacturer to comply with flammability requirements for installed carpet.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Clear away debris and scrape up cementitious deposits from concrete surfaces to receive carpet; apply sealer to prevent dusting.
- B. Patch holes and level to a smooth surface. If previous finish chemically stripped, reseal concrete. Seal powdery or porous surfaces with sealer recommended by carpet manufacturer.
- C. Patch holes and cracks. Sand to level. Remove wax. Seal surface with sealer recommended by carpet manufacturer.

### 3.2 INSTALLATION

- A. Comply with manufacturer's recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position; do not place seams perpendicular to door frame, in direction of traffic through doorway. Do not bridge building expansion joints with continuous carpet.
- B. Extend carpet under removable flanges and furnishings and into alcoves and closets of each space.
- C. Provide cutouts where required, and bind cut edges where not concealed by

protective edge guards or overlapping flanges.

- D. Install carpet edge guard where edge of carpet is exposed; anchor guards to substrate.
- E. Install with pattern parallel to walls and borders.
- F. Install carpet by trimming edges, butting cuts with seaming cement, and taping and/or sewing seams to provide sufficient strength for stretching and continued stresses during life of carpet.
- G. Fit sections of carpet prior to application of adhesive. Trim edges and butt cuts with seaming cement.
- H. Apply adhesive uniformly to substrate in accordance with manufacturer's instructions. Butt edges tight to form seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond.

### 3.3 CLEANING

- A. Remove adhesive from carpet surface with manufacturer's recommended cleaning agent.
- B. Remove and dispose of debris and unusable scraps. Vacuum with commercial machine with face-beater element. Remove soil. Replace carpet where soil cannot be removed. Remove protruding face yarn.
- C. Vacuum carpet.

### 3.4 PROTECTION

Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, to ensure carpet is not damaged or deteriorated at time of Substantial Completion.

### 3.5 CARPET SCHEDULE

CARPET: Carpet shall be as shown on the Material and color Schedule on the drawings or equal as approved by the Contracting Officer.

- A. Carpet Construction (CPT1):
  - 1. Primary Backing: Woven polypropylene.
  - 2. Secondary Backing: Polypropylene

3. Face Yarn: 88% ECO Solution AQ Solution Dyed BCF Nylon/12% Yarn Dyed BCF Nylon with recycled content.
4. Yarn Weight: 28 ozs./yd<sup>2</sup>
5. Total Weight: 63.5 ozs./yd<sup>2</sup>
6. Gauge: 1/10
7. Switch: 12 per inch
8. Finished Pile thickness: .165
9. Density: 6109ozs/yd<sup>3</sup>
10. Style Name: Movement as manufactured by Shaw Contract
11. Style Number: 50875
12. Color Number: Persian
13. Construction: Pattern Loop

B. Carpet Construction (CPT2):

1. Primary Backing: Synthetic.
2. Face Yarn: DuPont Antron® Legacy BCF Twisted, Heatset Nylon, with static control.
3. Yarn Ply: 2 Ply
4. Pitch: 135 equivalent
5. Rows: 0.037 per mm (9.4 per inch)
6. Pile Thickness: 6.43 mm (0.253 inch).
7. Pile Weight as Woven: 1424 g/m<sup>2</sup> (42 oz/yd<sup>2</sup>).
8. Total Weight: 2597 g/m<sup>2</sup> (76.6 oz/yd<sup>2</sup>)
9. Density: 5,976
10. Weight Density: 251,004
11. Construction: Patterned Cut and Loop Pile

12. Pattern Repeat:
  - a. Widthwise: 102 mm (4 inches)
  - b. Lengthwise: 108 mm (4.26 inches)
13. Width: 3.66 m (12 feet)
14. Style: Opulent Block
15. Color: 10545-Court Square

END OF SECTION 09680

## SECTION 09900

## PAINTING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces. Surface preparation, priming, and finish coats specified in this Section are in addition to shop-priming and surface treatment specified under other Sections.
- B. Paint exposed surfaces whether or not colors are designated in schedules, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Contracting Officer will select from standard colors or finishes available. Painting includes field-painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
- C. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.
  - 1. Prefinished items not to be painted include the following factory-finished components:
    - a. Metal toilet enclosures.
    - b. Acoustic materials.
    - c. Architectural woodwork and casework.
    - d. Finished mechanical and electrical equipment.
    - e. Light fixtures.
    - f. Switchgear.
    - g. Distribution cabinets.
  - 2. Concealed surfaces not to be painted include wall or ceiling surfaces in the following generally inaccessible areas:



- a. Foundation spaces.
    - b. Furred areas.
    - c. Pipe spaces.
    - d. Duct shafts.
  - 3. Finished metal surfaces not to be painted include:
    - a. Anodized aluminum.
    - b. Stainless steel.
    - c. Chromium plate.
    - d. Copper.
    - e. Bronze.
    - f. Brass.
  - 4. Operating parts not to be painted include moving parts of operating equipment, such as the following:
    - a. Valve and damper operators.
    - b. Linkages.
    - c. Sensing devices.
    - d. Motor and fan shafts.
  - 5. Labels: Do not paint over Underwriters Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections: The following Sections contain requirements that relate to this Section:
- 1. Division 5 Section "Structural Steel" for shop-priming structural steel.
  - 2. Division 5 Section "Metal Fabrications" for shop-priming ferrous metal.
  - 3. Division 6 Section "Interior Architectural Woodwork" for shop-priming interior architectural woodwork.
  - 4. Division 8 Section "Standard Steel Doors and Frames" for shop-priming steel doors and frames.
  - 5. Division 9 Sections "Vinyl Wall Coverings" and "Acoustical Wall Coverings" for substrate sealer under wall coverings.
  - 6. Divisions 15 and 16: Painting mechanical and electrical work is specified in Divisions 15 and 16, respectively.

### 1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each paint system specified, including block fillers and primers.
  - 1. Provide the manufacturer's technical information including label analysis and instructions for handling, storage, and application of each material proposed for use.
  - 2. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.
  - 3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
- C. Samples for initial color selection in the form of manufacturer's color charts. After color selection, the Contracting Officer will furnish color chips for surfaces to be coated.
- D. Samples for Verification Purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
  - 1. Provide stepped samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.
  - 2. Provide a list of material and application for each coat of each sample. Label each sample as to location and application.
  - 3. Submit samples on the following substrates for the Contracting Officer's review of color and texture only:
    - a. Concrete: Provide two 4-inch-square samples for each color and finish.
    - b. Concrete Masonry: Provide two 4-by-8-inch samples of masonry, with mortar joint in the center, for each finish and color.
    - c. Painted Wood: Provide two 12-inch-square samples of each color and material on hardboard.
    - d. Stained or Natural Wood: Provide two 4-by-8-inch samples of natural and stained wood finish on actual wood surfaces.
    - e. Ferrous Metal: Provide two 4-inch-square samples of flat metal and

two 8-inch-long samples of solid metal for each color and finish.

#### 1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.
- B. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
- C. Field Samples: On wall surfaces and other exterior and interior components, duplicate finishes of prepared samples. Provide full-coat finish samples on at least 100 sq. ft. of surface until required sheen, color, and texture are obtained; simulate finished lighting conditions for review of in-place work.
  - 1. Final acceptance of colors will be from job-applied samples.
  - 2. The Contracting Officer will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted. Apply coatings in this room or surface according to the schedule or as specified. After finishes are accepted, this room or surface will be used to evaluate coating systems of a similar nature.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
  - 1. Product name or title of material.
  - 2. Product description (generic classification or binder type).
  - 3. Manufacturer's stock number and date of manufacture.
  - 4. Contents by volume, for pigment and vehicle constituents.
  - 5. Thinning instructions.
  - 6. Application instructions.
  - 7. Color name and number.

- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

## 1.6 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F (7 deg C) and 95 deg F (35 deg C).
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
- B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
  - 1. Devoe and Raynolds Co. (Devoe).
  - 2. Fuller O'Brien (Fuller).
  - 3. The Glidden Company (Glidden).
  - 4. Benjamin Moore and Co. (Moore).
  - 5. PPG Industries, Pittsburgh Paints (PPG).

6. Pratt and Lambert (P & L).
7. The Sherwin-Williams Company (S-W).
8. Coronado Paint

## 2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, finish coat materials, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.
- B. Material Quality: Provide the manufacturer's best-quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish the manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections to match the following selections and to be applied in areas indicated on drawings or other colors from paint manufacturer standard color selection approved by Contracting Officer where indicated:

Paint #1 - Devoe Paint - Color – Sonoma Shade – 3W16-2

Paint #2 - Coronado Paint - Color - Lava - X-40-3

Paint #3 - Coronado Paint - Color - Dark Cloud - X38-3

## 2.3 MASONRY BLOCK FILLER

- A. Filler Coat Materials: Provide the manufacturer's recommended factory-formulated, latex-type concrete masonry block fillers that are compatible with the finish materials indicated.
- B. Available Products: Subject to compliance with requirements, block fillers that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following:

## 2.4 PRIMERS

- A. Primers: Provide the manufacturer's recommended factory-formulated primers that are compatible with the substrate and finish coats indicated.

- B. Available Products: Subject to compliance with requirements, prime coat materials that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following:
1. Concrete and Masonry Primers: Interior, flat, latex-based paint.
    - a. Devoe: 51701 Wonder-Prime Interior All Purpose Latex Primer Sealer & Vapor Barrier.
    - b. Fuller: 202-XX Interior - Exterior Acrylic Latex Wall Paint.
    - c. Glidden: 5300 Ultra-Hide Flat Wall Paint.
    - d. Moore: Moore's Latex Quick-Dry Prime Seal #201.
    - e. PPG: 80 Line Wallhide Flat Latex Paint.
    - f. P & L: Vapex Latex Flat Wall Finish.
    - g. S-W: ProMar 200 Latex Flat B30W200.
  2. Gypsum Drywall Primer: White, interior, latex-based primer.
    - a. Devoe: 50801 Wonder-Tones Latex Primer and Sealer.
    - b. Fuller: Pro-Tech Interior Latex Wall Primer and Sealer.
    - c. Glidden: 5019 PVA Primer.
    - d. Moore: Moore's Latex Quick-Dry Prime Seal #201.
    - e. PPG: 6-2 Quick-Dry Latex Primer Sealer.
    - f. P & L: Latex Wall Primer Z30001.
    - g. S-W: ProMar 200 Latex Wall Primer B28W200.
  3. Ferrous Metal Primers: Synthetic, quick-drying, rust-inhibiting primers.
    - a. Devoe: 13101 Mirrolac Cover Up Rust Penetrating Primer.
    - b. Fuller: 621-04 Blox-Rust Alkyd Metal Primer.
    - c. Glidden: 5210 Glid-Guard Universal Fast-Dry Metal Primer.
    - d. Moore: IronClad Retardo Rust-Inhibitive Paint #163.
    - e. PPG: 6-208 Red Inhibitive Metal Primer.
    - f. P & L: Effecto Rust-Inhibiting Primer.
    - g. S-W: Kem Kromik Metal Primer B50N2/B50W1.
  4. Galvanized Metal Primers:
    - a. Devoe: 13201 Mirrolac Galvanized Metal Primer.
    - b. Fuller: 621-05 Blox-Rust Latex Metal Primer.
    - c. Glidden: 5229 Glid-Guard All-Purpose Metal Primer.
    - d. Moore: IronClad Galvanized Metal Latex Primer #155.
    - e. PPG: 6-215/216 Speedhide Galvanized Steel Primer.
    - f. P & L: P & L Interior Trim Primer.
    - g. S-W: Galvite B50W3.

## 5. Aluminum Primers:

- a. Devoe: 41820 Bar-Ox Alkyd Shop/Field Primer Grey.
- b. Fuller: 621-05 Blox-Rust Latex Metal Primer.
- c. Glidden: 5229 Glid-Guard All-Purpose Metal Primer.
- d. Moore: No Primer Required.
- e. PPG: 6-712 Speedhide Inhibitive Metal Primer, White.
- f. P & L: Effecto Primer Red or White.
- g. S-W: No Primer Necessary.

## 2.5 UNDERCOAT MATERIALS

- A. Undercoat Materials: Provide the manufacturer's recommended factory-formulated undercoat materials that are compatible with the substrate and finish coats indicated.
- B. Available Products: Subject to compliance with requirements, undercoat materials that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Interior Enamel Undercoat: Ready-mixed enamel. (Galvanized steel)
    - a. Devoe: 8801 Velour Alkyd Enamel Undercoat.
    - b. Fuller: 220-07 Interior Alkyd Enamel Undercoat.
    - c. Glidden: 4200 Spred Ultra Semi-Gloss Enamel.
    - d. Moore: Moore's Alkyd Enamel Underbody #217.
    - e. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
    - f. P & L: Interior Trim Primer.
    - g. S-W: ProMar 200 Alkyd Semi-Gloss Enamel B34W200.
  - 2. Interior Enamel Undercoat: Ready-mixed enamel. (ferrous Metal)
    - a. Devoe: 8801 Velour Alkyd Enamel Undercoat.
    - b. Fuller: 220-07 Interior Alkyd Enamel Undercoat.
    - c. Glidden: 4200 Spred Ultra Semi-Gloss Enamel.
    - d. Moore: Moore's Alkyd Enamel Underbody #217.
    - e. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
    - f. P & L: Interior Trim Primer.
    - g. S-W: Wall and Wood Primer B49W2.
  - 3. Interior Enamel Undercoat: Ready-mixed enamel. (Painted Wood)
    - a. Devoe: 8801 Velour Alkyd Enamel Undercoat.
    - b. Fuller: 220-07 Interior Alkyd Enamel Undercoat.

- c. Glidden: 310 Glidden Wood Undercoater.
- d. Moore: Moore's Alkyd Enamel Underbody #217.
- e. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
- f. P & L: Interior Trim Primer.
- g. S-W: ProMar 200 Alkyd Enamel Undercoater B49W200.

## 2.6 EXTERIOR FINISH PAINT MATERIAL

- A. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated.
- B. Available Products: Subject to compliance with requirements, finish coat materials that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Alkyd Gloss Enamel: Weather-resistant, air-drying, high-gloss enamel.
    - a. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
    - b. Fuller: 312-XX EPA Compliant Heavy Duty Enamel.
    - c. Glidden: 4500 Glid-Guard Industrial Enamel.
    - d. Moore: Impervo High-Gloss Enamel #133.
    - e. PPG: 54 Line Quick-Dry Enamel.
    - f. P & L: Effecto Enamel.
    - g. S-W: Industrial Enamel B-54 Series.
  - 2. Gloss Alkyd Enamel: Weather-resistant, high-gloss enamel.
    - a. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
    - b. Fuller: 312-XX epa Compliant Heavy Duty Enamel.
    - c. Glidden: 4500 Glid-Guard Industrial Enamel.
    - d. Moore: Impervo High-Gloss Enamel #133.
    - e. PPG: 54 Line Quick-Dry Enamel.
    - f. P & L: Effecto Enamel.
    - g. S-W: Industrial Enamel B-54 Series.
  - 3. Gloss Alkyd Enamel: Weather-resistant, high-gloss enamel.
    - a. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
    - b. Fuller: 312-XX EPA Compliant Heavy Duty Enamel.
    - c. Glidden: 4500-Line Glid-Guard Industrial Enamel.



- d. Moore: Impervo High-Gloss Enamel #133.
- e. PPG: 54 Line Quick-Dry Enamel.
- f. P & L: Effecto Enamel.
- g. S-W: Industrial Enamel B-54 Series.

## 2.7 INTERIOR FINISH PAINT MATERIAL

- A. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated.
- B. Available Products: Subject to compliance with requirements, finish coat materials that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following:
  - 1. Interior, Flat, Latex-Based Paint: Ready-mixed, latex-based paint for a flat finish.
    - a. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.
    - b. Fuller: 602XX Liquid Velvet Latex Wall Paint.
    - c. Glidden: 3400 Spred Satin Latex Wall Paint.
    - d. Moore: Regal Wall Satin #215.
    - e. PPG: 80 Line Wallhide Flat Latex Paint.
    - f. P & L: Vapex Latex Flat Wall Finish.
    - g. S-W: Classic 99 Wall and Trim Paint A27W10.
  - 2. Interior, Semigloss, Odorless Alkyd Enamel: Semigloss, low-odor, alkyd enamel.
    - a. Devoe: 26XX Velour Alkyd Semigloss Enamel.
    - b. Fuller: 110XX Fullerglo Alkyd Semigloss Enamel.
    - c. Glidden: 4200 Spred Ultra Semigloss Enamel.
    - d. Moore: Moore's Satin Impervo Enamel #235.
    - e. PPG: 27 Line Wallhide Semigloss Enamel.
    - f. P & L: Cellu-Tone Alkyd Satin Enamel.
    - g. S-W: Classic 99 Semigloss Enamel A40 Series.

## 2.8 MISCELLANEOUS WOOD-FINISHING MATERIALS

- A. Wood-Finishing Materials: Provide the manufacturer's recommended factory-formulated, wood-finishing materials that are compatible with the substrate and undercoats indicated.

- B. Available Products: Subject to compliance with requirements, wood-finishing materials that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following:
1. Varnish-Type Surface Sealer:
    - a. Devoe: 1502 Wonder Shield Exterior Acrylic Latex House Paint Primer.
    - b. Glidden: 3651 Spred House Paint Prime Coat.
    - c. PPG: 77-1 Rez Sealer-Primer.
    - d. P & L: Varmor Penetrating Sealer.
    - e. S-W: Chek Gard Primer B42W10.
  2. Oil-Type Interior Wood Stain: Slow-penetrating, oil-type wood stain.
    - a. Fuller: 640-XX Pen-Chrome Interior Oil Base Wood Stain.
    - b. Glidden: 1600 Woodmaster Oil Stain.
  3. Cut Shellac: Quick-drying, rosin-free, clear, general-purpose shellac varnish.
    - a. Fuller: No recommendation.
    - b. Glidden: 5035 Ultra-Hide Sanding Sealer.
  4. Paste Wood Filler: Solvent-based, air-drying, paste-type wood filler.
    - a. Fuller: 680-00 Pen Chrome Paste Wood Filler.
    - b. Glidden: Glidden Paste Wood Filler.
  5. Oil Rubbing Varnish: Clear, oil-type, rubbing varnish for use on interior stained or natural-finished woodwork:
    - a. Fuller: 653-01 EPA Compliant Clear Polyurethane Satin Finish.
    - b. Glidden: 82 Woodmaster Satin Sheen Urethane Varnish.
- D. Paste Wax: Provide paste wax as recommended by the coating manufacturer for use on interior stained and natural-finished woodwork.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.
  - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected.
  - 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers. Notify the Contracting Officer about anticipated problems using the materials specified over substrates primed by others.

### 3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.
  - 1. Provide barrier coats over incompatible primers or remove and reprime. Notify Contracting Officer in writing about anticipated problems using the specified finish-coat material with substrates primed by others.
  - 2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen, as required, to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
    - a. Use abrasive blast-cleaning methods if recommended by the paint manufacturer.

- b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
  - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
- 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
  - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
  - b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
  - c. When transparent finish is required, backprime with spar varnish.
  - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
  - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.
- 4. Ferrous Metals: Clean ungalvanized ferrous metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council (SSPC).
  - a. Blast steel surfaces clean as recommended by the paint system manufacturer and according to requirements of SSPC specification SSPC-SP 10.
  - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
  - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.
- 5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by

mechanical methods.

- D. Materials Preparation: Carefully mix and prepare paint materials according to manufacturer's directions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
  2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
  3. Use only thinners approved by the paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

### 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
  2. Provide finish coats that are compatible with primers used.
  3. The number of coats and the film thickness required are the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce a smooth even surface according to the manufacturer's directions.
  4. Apply additional coats if undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
  5. The term exposed surfaces includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required,

to maintain the system integrity and provide desired protection.

6. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  7. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
  8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
  10. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.
  11. Sand lightly between each succeeding enamel or varnish coat.
  12. Omit primer on metal surfaces that have been shop-primed and touch-up painted.
- C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- D. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to the manufacturer's directions.
1. Brushes: Use brushes best suited for the material applied.
  2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- E. Minimum Coating Thickness: Apply materials no thinner than the manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

- F. Mechanical and Electrical Work: Painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.
- G. Mechanical items to be painted include, but are not limited to, the following:
  - 1. Piping, pipe hangers, and supports.
  - 2. Heat exchangers.
  - 3. Tanks.
  - 4. Ductwork.
  - 5. Insulation.
  - 6. Supports.
  - 7. Motors and mechanical equipment.
  - 8. Accessory items.
- H. Electrical items to be painted include, but are not limited to, the following:
  - 1. Conduit and fittings.
  - 2. Switchgear.
- I. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- J. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime-coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- K. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.
- L. Pigmented (Opaque) Finishes: Completely cover to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

- M. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections. Provide satin finish for final coats.
- N. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with specified requirements.

### 3.4 FIELD QUALITY CONTROL

- A. The Government reserves the right to invoke the following test procedure at any time and as often as the Contracting Officer deems necessary during the period when paint is being applied:
  - 1. The Contracting Officer may engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
  - 2. The testing agency will perform appropriate tests for the following characteristics as required by the Contracting Officer:
    - a. Quantitative materials analysis.
    - b. Abrasion resistance.
    - c. Apparent reflectivity.
    - d. Flexibility.
    - e. Washability.
    - f. Absorption.
    - g. Accelerated weathering.
    - h. Dry opacity.
    - i. Accelerated yellowness.
    - j. Recoating.
    - k. Skinning.
    - l. Color retention.
    - m. Alkali and mildew resistance.
  - 3. If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

### 3.5 CLEANING



Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

### 3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Contracting Officer.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.7 EXTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates indicated.
- B. Concrete, and Masonry (other than concrete masonry units): Clear Sealer Flood Coat
- C. Ferrous Metal: Full-Gloss Alkyd Enamel: Two finish coats over primer. (Primer is not required on shop-primed items.)

- 1. Primer: Synthetic rust-inhibiting primer.

- a. Devoe: 14920 Bar-Ox Quick Dry Metal Primer, Red.
- b. Fuller: 621-04 Blox-Rust Alkyd Metal Primer.
- c. Glidden: 5210 Glid-Guard Universal Fast-Dry Metal Primer.
- d. Moore: IronClad Retardo Rust-Inhibitive Paint #163.
- e. PPG: 6-208 Red Inhibitive Metal Primer.
- f. P & L: Effecto Rust-Inhibiting Primer.
- g. S-W: Kem Kromik Metal Primer B50N2/B50W1.

- 2. First and Second Coats: Gloss alkyd enamel.

- a. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
- b. Fuller: 312-XX EPA Compliant Heavy Duty Enamel.

- c. Glidden: 4500 Glid-Guard Industrial Enamel.
- d. Moore: Impervo High-Gloss Enamel #133.
- e. PPG: 54 Line Quick-Dry Enamel.
- f. P & L: Effecto Enamel.
- g. S-W: Industrial Enamel B-54 Series.

D. Zinc-Coated Metal: High-Gloss Alkyd Enamel: Two finish coats over primer.

1. Primer: Galvanized metal primer.

- a. Devoe: 13201 Mirrolac Galvanized Metal Primer.
- b. Fuller: 621-05 Blox-Rust Latex Metal Primer.
- c. Glidden: 5229 Glid-Guard All-Purpose Metal Primer.
- d. Moore: IronClad Galvanized Metal Latex Primer #155.
- e. PPG: 6-215/216 Speedhide Galvanized Steel Primer.
- f. P & L: Interior Trim Primer.
- g. S-W: Galvite B50W3.

2. First and Second Coats: Gloss alkyd enamel.

- a. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
- b. Fuller: 312-XX EPA Compliant Heavy Duty Enamel.
- c. Glidden: 4500-Line Glid-Guard Industrial Enamel.
- d. Moore: Impervo High-Gloss Enamel #133.
- e. PPG: 54 Line Quick-Dry Enamel.
- f. P & L: Effecto Enamel.
- g. S-W: Industrial Enamel B-54 Series.

E. Aluminum: High-Gloss Alkyd Enamel: Two finish coats over primer.

1. Primer: Alkyd-type primer.

- a. Devoe: 41820 Bar-Ox Alkyd Shop/Field Primer Grey.
- b. Fuller: 621-05 Blox-Rust Latex Metal Primer.
- c. Glidden: 5229 Glid-Guard All-Purpose Metal Primer.
- e. Moore: No Primer Required.
- f. PPG: 6-712 Speedhide Inhibitive Metal Primer, White.
- g. P & L: Effecto Primer Red or White.
- h. S-W: No Primer Necessary.

2. First and Second Coats: Gloss alkyd enamel.

- a. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
- b. Fuller: 312-XX EPA Compliant Heavy Duty Enamel.

- c. Glidden: 4500-Line Glid-Guard Industrial Enamel.
- d. Moore: Impervo High-Gloss Enamel #133.
- e. PPG: 54 Line Quick-Dry Enamel.
- f. P & L: Effecto Enamel.
- g. S-W: Industrial Enamel B-54 Series.

### 3.8 INTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates, as indicated.
- B. Concrete and Masonry: Lusterless (Flat) Latex Finish: Two coats. (other than concrete masonry units):
  - 1. First Coats: Interior, flat, latex-based paint.
    - a. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.
    - b. Fuller: 602XX Liquid Velvet Latex Wall Paint.
    - c. Glidden: 3400 Spred Satin Latex Wall Paint.
    - d. Moore: Regal Wall Satin #215.
    - e. PPG: 80 Line Wallhide Flat Latex Paint.
    - f. P & L: Vapex Latex Flat Wall Finish.
    - g. S-W: Classic 99 Wall and Trim Paint A27W10.
  - 2. Second Coats: Interior, flat, latex-based paint.
    - a. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.
    - b. Fuller: 602XX Liquid Velvet Latex Wall Paint.
    - c. Glidden: 3400 Spred Satin Latex Wall Paint.
    - d. Moore: Regal Wall Satin #215.
    - e. PPG: 80 Line Wallhide Flat Latex Paint.
    - f. P & L: Vapex Latex Flat Wall Finish.
    - g. S-W: Classic 99 Wall and Trim Paint A27W10.
- C. Concrete Masonry Units: Lusterless (Flat) Emulsion Finish: Two finish coats over filled surface.
  - 1. Block Filler: High-performance latex block filler.
    - a. Devoe: 52901 Bloxfil Acrylic Latex Block Filler.
    - b. Fuller: 280-00 Interior/Exterior Latex Block Filler.
    - c. Glidden: 5317 Ultra-Hide Acrylic Latex Block Filler.
    - d. Moore: Moorcraft Interior & Exterior Block Filler #173.
    - e. PPG: 6-7 Latex Masonry Block Filler.
    - f. P & L: Pro-Hide Plus Block Filler.

- g. S-W: Heavy-Duty Block Filler B42W46.
2. First and Second Coats: Interior, flat, latex-based paint.
- a. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.
- b. Fuller: 602XX Liquid Velvet Latex Wall Paint.
- c. Glidden: 3400 Spred Satin Latex Wall Paint.
- d. Moore: Regal Wall Satin #215.
- e. PPG: 80 Line Wallhide Flat Latex Paint.
- f. P & L: Vapex Latex Flat Wall Finish.
- g. S-W: Classic 99 Wall and Trim Paint A27W10.
- D. Gypsum Drywall Systems: Lusterless (Flat) Emulsion Finish: Two coats.
1. Primer: White, interior, latex-based primer.
- a. Devoe: 50801 Wonder-Tones Latex Primer and Sealer.
- b. Fuller: Pro-Tech Interior Latex Wall Primer and Sealer.
- c. Glidden: 5019 PVA Primer.
- d. Moore: Moore's Latex Quick-Dry Prime Seal #201.
- e. PPG: 6-2 Quick-Dry Latex Primer Sealer.
- f. P & L: Latex Wall Primer Z30001.
- g. S-W: Pro-Mar 200 Latex Wall Primer B28W200.
2. Finish Coat: Interior, flat, latex-based paint.
- a. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.
- b. Fuller: 602XX Liquid Velvet Latex Wall Paint.
- c. Glidden: 3400 Spred Satin Latex Wall Paint.
- d. Moore: Regal Wall Satin #215.
- e. PPG: 80 Line Wallhide Flat Latex Paint.
- f. P & L: Vapex Latex Flat Wall Finish.
- g. S-W: Classic 99 Wall and Trim Paint A27W10.
- E. Woodwork and Hardboard: Semigloss Enamel Finish: Three coats.
1. Undercoat: Interior enamel undercoat.
- a. Devoe: 8801 Velour Alkyd Enamel Undercoat.
- b. Fuller: 220-07 Interior Alkyd Enamel Undercoat.
- c. Glidden: 310 Glidden Wood Undercoater.
- d. Moore: Moore's Alkyd Enamel Underbody #217.
- e. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
- f. P & L: Interior Trim Primer.
- g. S-W: Pro-Mar 200 Alkyd Enamel Undercoater B49W200.

2. First and Second Coats: Interior, semigloss, odorless, alkyd enamel.
  - a Devoe: 26XX Velour Alkyd Semigloss Enamel.
  - b Fuller: 110XX Fullerglo Alkyd Semigloss Enamel.
  - c Glidden: 4200 Spred Ultra Semigloss Enamel.
  - d Moore: Moore's Satin Impervo Enamel #235.
  - e PPG: 27 Line Wallhide Semigloss Enamel.
  - f P & L: Cellu-Tone Alkyd Satin Enamel.
  - g S-W: Classic 99 Semigloss Enamel A40 Series.
- F. Stained Woodwork: Stained-Varnish Rubbed Finish: Three finish coats over stain plus filler on open-grain wood. Wipe filler before applying first varnish coat.
  1. Stain Coat: Oil-type interior wood stain.
    - a Fuller: 640-XX Pen-Chrome Interior Oil Base Wood Stain.
    - b Glidden: 1600 Woodmaster Oil Stain.
  2. First Coat: Cut shellac.
    - a Glidden: 5035 Ultra-Hide Sanding Sealer.
    - b Moore: 413 Moore's Interior Wood Finishes Quick-Dry Sanding Sealer.
  3. Filler Coat: Paste wood filler.
    - a Fuller: 680-00 Pen Chrome Paste Wood Filler.
    - b Glidden: Glidden Paste Wood Filler.
  4. Second and Third Coats: Oil rubbing varnish.
    - a Fuller: 653-01 EPA Compliant Clear Polyurethane Satin Finish.
    - b Glidden: 82 Woodmaster Satin Sheen Urethane Varnish.
- G. Natural-Finish Woodwork: Rubbed Varnish Finish: Two finish coats over shellac plus filler on open-grain wood.
  1. First Coat: Cut shellac.
    - a Glidden: 5035 Ultra-Hide Sanding Sealer.
    - b Moore: 413 Moore's Interior Wood Finishes Quick-Dry Sanding Sealer.
  2. Filler Coat: Paste wood filler.

- a. Fuller: 680-00 Pen Chrome Paste Wood Filler.
  - b. Glidden: Glidden Paste Wood Filler.
- 3. Second and Third Coats: Oil rubbing varnish.
  - a. Fuller: 653-01 EPA Compliant Clear Polyurethane Satin Finish.
  - b. Glidden: 82 Woodmaster Satin Sheen Urethane Varnish.
- H. Ferrous Metal: Semigloss Enamel Finish: Two coats over primer with total dry film thickness not less than 2.5 mils.
  - 1. Primer: Synthetic, quick-drying, rust-inhibiting primer.
    - a. Devoe: 14920 Bar-Ox Quick Dry Metal Primer, Red.
    - b. Fuller: 621-04 Blox-Rust Alkyd Metal Primer.
    - c. Glidden: 5210 Glid-Guard Universal Fast-Dry Metal Primer.
    - d. Moore: Ironclad Retardo Rust-Inhibitive Paint #163.
    - e. PPG: 6-208 Red Inhibitive Metal Primer.
    - f. P & L: Effecto Rust-Inhibiting Primer.
    - g. S-W: Kem Kromik Metal Primer B50N2/B50W1.
  - 2. Undercoat: Interior enamel undercoat.
    - a. Devoe: 8801 Velour Alkyd Enamel Undercoat.
    - b. Fuller: 220-07 Interior Alkyd Enamel Undercoat.
    - c. Glidden: 4200 Spred Ultra Semi-Gloss Enamel.
    - d. Moore: Moore's Alkyd Enamel Underbody #217.
    - e. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
    - f. P & L: Interior Trim Primer.
    - g. S-W: Pro-Mar 200 Alkyd Enamel Undercoater B49W200.
  - 3. Finish Coat: Interior, semigloss, odorless, alkyd enamel.
    - a. Devoe: 26XX Velour Alkyd Semigloss Enamel.
    - b. Fuller: 110XX Fullerglo Alkyd Semigloss Enamel.
    - c. Glidden: 4200 Spred Ultra Semigloss Enamel.
    - d. Moore: Moore's Satin Impervo Enamel #235.
    - e. PPG: 27 Line Wallhide Semigloss Enamel.
    - f. P & L: Cellu-Tone Alkyd Satin Enamel.
    - g. S-W: Classic 99 Semigloss Enamel A40 Series.
- I. Zinc-Coated Metal: Semigloss Finish: Two coats over primer, with total dry film thickness not less than 2.5 mils.

1. Primer: Galvanized metal primer.
    - a. Devoe: 13201 Mirrolac Galvanized Metal Primer.
    - b. Fuller: 621-05 Blox-Rust Latex Metal Primer.
    - c. Glidden: 5229 Glid-Guard All-Purpose Metal Primer.
    - d. Moore: Ironclad Galvanized Metal Latex Primer #155.
    - e. PPG: 6-215/216 Speedhide Galvanized Steel Primer.
    - f. P & L: Interior Trim Primer.
    - g. S-W: Galvite B50W3.
  2. Undercoat: Interior enamel undercoat.
    - a. Devoe: 8801 Velour Alkyd Enamel Undercoat.
    - b. Fuller: 220-07 Interior Alkyd Enamel Undercoat.
    - c. Glidden: 4200 Spred Ultra Semi-Gloss Enamel.
    - d. Moore: Moore's Alkyd Enamel Underbody #217.
    - e. PPG: 6-6 Speedhide Quick-Dry Enamel Undercoater.
    - f. P & L: Interior Trim Primer.
    - g. S-W: Pro-Mar 200 Alkyd Enamel Undercoater B49W200.
  3. Finish Coat: Interior, semigloss, odorless, alkyd enamel.
    - a. Devoe: 26XX Velour Alkyd Semigloss Enamel.
    - b. Fuller: 110XX Fullerglo Alkyd Semigloss Enamel.
    - c. Glidden: 4200 Spred Ultra Semigloss Enamel.
    - d. Moore: Moore's Satin Impervo Enamel #235.
    - e. PPG: 27 Line Wallhide Semigloss Enamel.
    - f. P & L: Cellu-Tone Alkyd Satin Enamel.
    - g. S-W: Classic 99 Semigloss Enamel A40 Series.
- J. Cotton or Canvas Covering over Insulation: Flat Latex Emulsion Size: Two coats.  
Add fungicidal agent to render fabric mildewproof.
1. First Coats: Interior, flat, latex-based paint.
    - a. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.
    - b. Fuller: 602XX Liquid Velvet Latex Wall Paint.
    - c. Glidden: 3400 Spred Satin Latex Wall Paint.
    - d. Moore: Regal Wall Satin #215.
    - e. PPG: 50-35 Latex Ceiling Paint.
    - f. P & L: Vapex Latex Flat Wall Finish.
    - g. S-W: Classic 99 Wall and Trim Paint A27W10.
  2. Second Coats: Interior, flat, latex-based paint.
    - a. Devoe: 36XX Wonder-Tones Latex Flat Wall Paint.

- b. Fuller: 602XX Liquid Velvet Latex Wall Paint.
- c. Glidden: 3400 Spred Satin Latex Wall Paint.
- d. Moore: Regal Wall Satin #215.
- e. PPG: 50-35 Latex Ceiling Paint.
- f. P & L: Vapex Latex Flat Wall Finish.
- g. S-W: Classic 99 Wall and Trim Paint A27W10.

END OF SECTION 09900



## SECTION 09950 - WALL COVERINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following: Vinyl wall covering.
- B. Prime coats for substrates are specified in Division 9 Section "Painting."

#### 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified. Include data on physical characteristics, durability, fade resistance, and flame resistance characteristics.
- C. Shop drawings showing location and extent of each wall covering type. Indicate termination points.
- D. Samples for initial selection purposes of each type of wall covering required, in manufacturer's standard sizes showing full range of colors, textures, and patterns available.
- E. Product certificates signed by wall covering manufacturer certifying materials furnished comply with specified requirements.
- F. Certified test reports showing compliance with requirements for fire performance characteristics and physical properties.
- G. Maintenance data for inclusion in "Operating and Maintenance Manual" specified in Division 1. Include the following:
  - 1. Methods for maintaining wall covering.
  - 2. Precautions for use of cleaning materials and methods that could be detrimental to finishes and performance.

#### 1.4 QUALITY ASSURANCE

Fire Performance Characteristics: Provide wall coverings with the following surface burning characteristics as determined by testing identical products per ASTM E 84 by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify wall coverings with appropriate markings of applicable testing and inspecting organization. Flame Spread: 5 or less. Smoke Developed: 15 or less.

#### 1.5 PROJECT CONDITIONS

Maintain a constant temperature not less than 60 deg F (16 deg C) in installation areas for at least 10 days before and 10 days after installation.

#### 1.6 EXTRA MATERIALS

Furnish extra materials from same production runs as wall covering installed. Package materials with protective covering and identify with labels describing contents. Deliver extra materials to Government. Rolls: Furnish quantity of full-size units equal to 10 percent of amount installed.

### PART 2 - PRODUCTS

#### 2.1 WALL COVERING MATERIALS

- A. Refer to Wall Covering Data Sheets at the end of this Section. Data sheets specify manufacturer, style, color, pattern, size, and related requirements for wall covering materials.
- B. Available Products: Subject to compliance with requirements, wall coverings that may be incorporated in the Work include, but are not limited to, the products specified in each Wall Covering Data Sheet.

#### 2.2 ADHESIVES

- A. General: Manufacturer's standard for use with specific wall covering and substrate application.
- B. Characteristics: Mildew-resistant, nonstaining, and strippable.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Acclimatize wall covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.
- B. Follow manufacturer's printed instructions for surface preparation.
  - 1. Prepare substrates to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, and defects.
  - 2. Painted Surfaces: Treat areas susceptible to pigment bleeding.
  - 3. Prime new gypsum board with a recommended primer.
- C. Check painted surfaces for pigment bleeding. Sand gloss, semi-gloss, and eggshell finishes with fine sandpaper.
- D. Install wall liner, with no gaps or overlaps, where required by wall covering manufacturer or project conditions. Form smooth wrinkle-free surface for finished installation. Do not begin wall covering installation until wall liner has dried.

### 3.2 INSTALLATION

- A. Follow manufacturer's printed instructions for installation.
- B. Install wall covering with no gaps or overlaps.
- C. Match pattern 6 feet above finish floor.
- D. Install seams vertical and plumb at least 6 inches from outside corners and 3 inches from inside corners. No horizontal seams.
- E. Remove air bubbles, wrinkles, blisters, and other defects.
- F. Trim edges for color uniformity, pattern match, and tight closure at seams and edges. Butt seams.

### 3.3 CLEANING

- A. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.
- B. Use cleaning methods recommended by the wall covering manufacturer.

- C. Replace strips that cannot be cleaned.

### 3.4 WALL COVERING SCHEDULE

Wall covering materials are scheduled on the following "Data Sheets".

#### A. VINYL WALL COVERING DATA SHEET

1. Vinyl Wall Covering Standard: FS CCC-W-408A and CFFA-W-101-A, Type II.
2. Durability Standard: ASTM F 793 for Category IV, Decorative with High Serviceability.

#### B. Wall Covering Selections:

1. WF-1, Equal to LANARK "Royal Crest" - Eclipse - L2-RC-19, designated as "E" on Finishes Schedule.
2. WF-2, Equal to SCHUMACHER "Allante" - Harrington Grey - 506683, designated as "F" on Finishes Schedule.

- C. **NOTE: THE CONTRACTOR SHALL PROVIDE A COMPLETED WALL COVERING PLAN FOR THE ENTIRE PROJECT, FOR APPROVAL BY THE CONTRACTING OFFICER.**

END OF SECTION 09950

## SECTION 09955

## ACOUSTICAL WALL COVERINGS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following: Acoustical Wall Covering Fabrics.
- B. Prime coats for substrates are specified in Division 9 Section "Painting."

## 1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified. Include data on physical characteristics, durability, fade resistance, and flame resistance characteristics.
- C. Shop drawings showing location and extent of each wall covering type. Indicate termination points.
- D. Samples for verification purposes of each type, color, texture, and pattern of wall covering and molding accessory required, prepared on samples of size indicated below: Full-width sample, not less than 36 inches long, of each wall covering specified. Show complete pattern repeat.
- E. Product certificates signed by wall covering manufacturer certifying materials furnished comply with specified requirements.
- F. Certified test reports showing compliance with requirements for fire performance characteristics and physical properties.
- G. Maintenance data for inclusion in "Operating and Maintenance Manual" specified in Division 1. Include the following:
  - 1. Methods for maintaining wall covering.

2. Precautions for use of cleaning materials and methods that could be detrimental to finishes and performance.

#### 1.4 QUALITY ASSURANCE

Fire Performance Characteristics: Provide acoustical wall coverings with the following surface burning characteristics as determined by testing identical products per ASTM E 84 by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical wall coverings with appropriate markings of applicable testing and inspecting organization. Flame Spread: 10 or less. Smoke Developed: 40 or less.

#### 1.5 PROJECT CONDITIONS

Maintain a constant temperature not less than 60 deg F (16 deg C) in installation areas for at least 10 days before and 10 days after installation.

#### 1.6 EXTRA MATERIALS

Furnish extra materials from same production runs as wall covering installed. Package materials with protective covering and identify with labels describing contents. Deliver extra materials to Government. Rolls: Furnish quantity of full-size units equal to 10 percent of amount installed.

### PART 2 - PRODUCTS

#### 2.1 ACOUSTICAL WALL COVERING MATERIALS

- A. Provide Acoustical Wall Covering equal to 100% Polyolefin, 16-ounces per sq.yd. (24-ounces per lineal yard), having backing fusedbonded, Class A Flammability per ASTM E-84, Flame Spread - 10, Smoke Developed - 40, in 54/56-inch widths, 90-feet long rolls, having a NRC Rating per ASTM C-423.90A, solution dyed fibers, having 5-year limited warranty against manufacturing defects.
- B. Acoustical Wall Covering shall be equal to Sound Systems Acoustical Wallcoverings, Pattern: Sidewinder; Color: Chelsea, No. SS 102.

#### 2.2 ADHESIVES

- A. General: Manufacturer's standard for use with specific acoustical wall covering and substrate application.
- B. Characteristics: Mildew-resistant, nonstaining, and strippable.

## 2.2 ACCESSORIES

Wall Liner: Manufacturer's standard nonwoven, synthetic underlayment.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Acclimatize acoustical wall covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.
- B. Follow manufacturer's printed instructions for surface preparation.
  - 1. Prepare substrates to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, and defects.
  - 2. Painted Surfaces: Treat areas susceptible to pigment bleeding.
  - 3. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
  - 4. Prime new gypsum board with a recommended primer.
- C. Check painted surfaces for pigment bleeding. Sand gloss, semi-gloss, and eggshell finishes with fine sandpaper.
- D. Install wall liner, with no gaps or overlaps, where required by wall covering manufacturer. Form smooth wrinkle-free surface for finished installation. Do not begin wall covering installation until wall liner has dried.

### 3.2 INSTALLATION

- A. Follow manufacturer's printed instructions for installation.
- B. Install wall covering with no gaps or overlaps.
- C. Match pattern 6 feet above finish floor.

- D. Install seams vertical and plumb at least 6 inches from outside corners and 3 inches from inside corners. No horizontal seams.
- E. Remove air bubbles, wrinkles, blisters, and other defects.
- F. Trim edges for color uniformity, pattern match, and tight closure at seams and edges. Butt seams.

### 3.3 CLEANING

- A. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.
- B. Use cleaning methods recommended by the wall covering manufacturer.
- C. Replace strips that cannot be cleaned.

END OF SECTION 09950